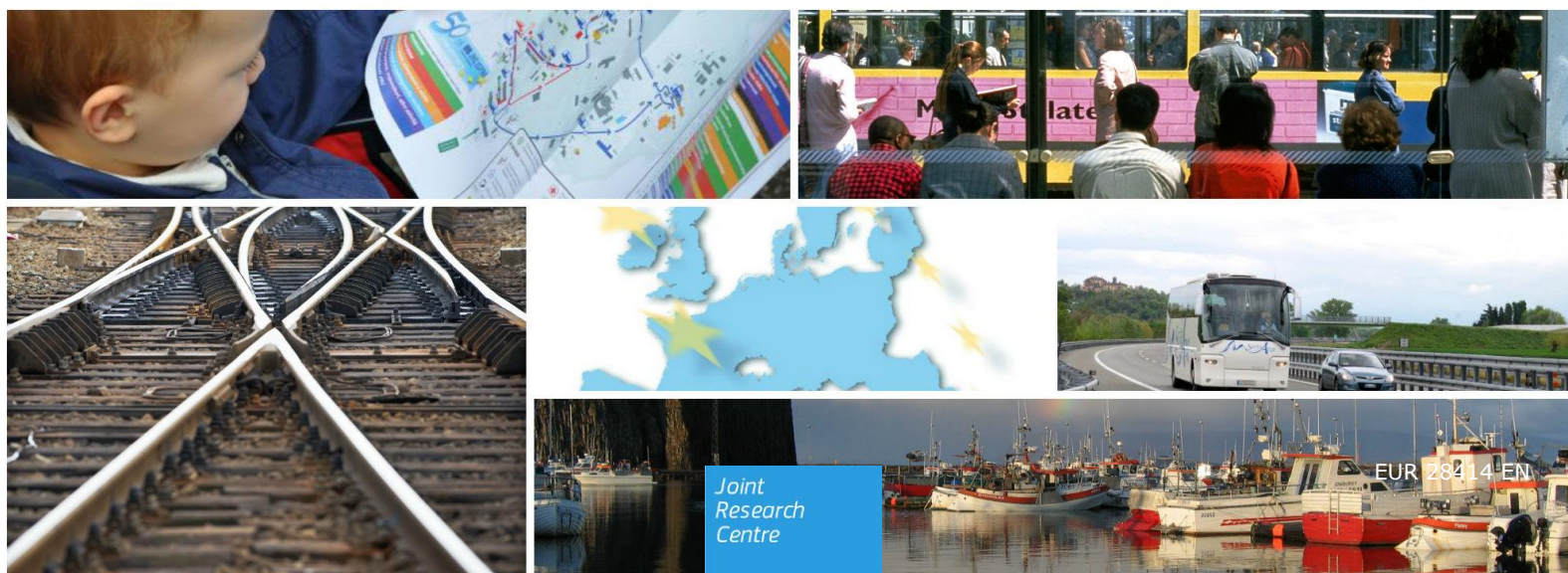


JRC TECHNICAL REPORTS

European Union Location Framework References

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Abstract

The European Union Location Framework (EULF) is a set of good practices and actions to promote more effective and efficient use of location information in e-government services across Europe. The EULF was initially developed in the ISA Programme, which supported interoperability solutions, sharing and re-use among European Public Administrations. It is now being enhanced and applied further through the European Location Interoperability Solutions for e-Government (ELISE) action in the successor ISA² Programme. [ISA²](#) develops digital solutions that enable interoperable public services across borders and sectors for the benefit of public administrations, businesses and citizens in the EU. [ISA² solutions](#) can be used free of charge and are [open source](#) when related to IT.

This document, the 'European Union Location Framework References', contains a set of inventories and links concerning the use of location information in e-government services and supplementary information related to the other EULF outputs, namely the EULF Strategic Vision, the Assessment of the Conditions for a EULF and the EULF Blueprint. It is therefore useful as an Annex to these other outputs but can be used as a self-standing reference document for anyone undertaking fact-finding or research into the use of location information in the context of e-government services.

The EULF References document is updated periodically as new developments take place in the field and are added to the body of knowledge. Please contact the document owner, Francesco Pignatelli, if you discover any errors or important omissions in this document. This is a rapidly developing field, with improvements taking place in Europe and more widely on a regular basis. It is also recognised that online documents and websites change location or are removed from time to time. Therefore, your help in keeping this document as accurate as possible will be greatly appreciated.

1. Introduction

The European Union Location Framework (EULF) aims to maximise the potential of the vast amount of money spent on location-related information and services by governments across Europe by promoting a best practice approach for cross-sector and cross-border sharing and use of this information, based on user needs and priorities, and targeting actions that will deliver efficiencies, contribute to growth and jobs, and improve e-services. This will be achieved through a series of measures focusing on better alignment of European policy involving location information, better integration of location information in public e-services, and improved interoperability and harmonisation of information to make it easier to develop new public services and enable business innovation and growth.

The EULF was initially developed in the ISA Programme, which supported interoperability solutions, sharing and re-use among European Public Administrations. It is now being enhanced and applied further through the European Location Interoperability Solutions for e-Government (ELISE) action in the successor ISA² Programme. [ISA²](#) develops digital solutions that enable interoperable public services across borders and sectors for the benefit of public administrations, businesses and citizens in the EU. [ISA² solutions](#) can be used free of charge and are [open source](#) when related to IT.

This document, the 'EULF References', contains a series of inventories and links regarding the use of location information in e-government services and supplementary information relating to the other EULF documents, namely:

- the 'EULF Strategic Vision', which provides a shared vision and rationale for a European Union Location Framework, defines its scope, and highlights the key implementation steps and governance for its creation and ongoing operation;
- the 'Assessment of the Conditions for an EULF', which provides an assessment of the state of play in the different focus areas of the EULF and the need for EULF action in these areas; and
- the 'EULF Blueprint', which contains methodologies, recommendations, guidelines and best practices in the different focus areas.

Information on the following topics is included in this document:

1. Related EU Policies and Actions
2. National e-Government Strategies
3. Sub-National e-Government Strategies
4. E-Government Practices
5. E-Government and e-Participation Indices in Europe
6. National Location Strategies
7. INSPIRE
8. Policy References in the INSPIRE Data Specifications
9. Other Location Information Practices
10. Open Data Initiatives
11. Open Source Software Initiatives
12. Case Studies – Applications
13. Benefits Studies
14. Training Resources
15. Key Facts – Frequently Asked Questions

2. Related EU Policies and Actions

POLICY AREA	POLICY / ACTION	RELATIONSHIP
Agriculture and Rural Development (DG AGRI)	Impact Assessment for "CAP Towards 2020"	Location-based analysis, reporting and subsidies
Communications Networks, Content and Technology (DG CNECT)	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: A Digital Agenda for Europe - COM(2010)245 final.	<p><i>Action 22: Promote standard-setting rules</i></p> <p>The results of the EULF project relied, where possible and feasible, on European and international standards, and involved standardisation organisations.</p> <p><i>Action 23: Provide guidance on ICT standardisation and public procurement</i></p> <p>The EULF contains specifications and guidelines that facilitate public procurement (see below).</p>
Communications Networks, Content and Technology (DG CNECT)	Digital Single Market European Parliament resolution of 20 April 2012 on a competitive digital single market – eGovernment as a spearhead (2011/2178(INI)) Digital Single Market Strategy	<p>The objectives of the Digital Single Market include:</p> <ul style="list-style-type: none"> • Rapidly concluding negotiations on common EU data protection rules. • Giving more ambition to the ongoing reform of telecoms rules. • Modifying copyright rules to reflect new technologies, and to make them simpler and clearer. • Simplifying consumer rules for online purchases. • Making it easier for innovators to start their own company. • Boosting digital skills and learning. • Enjoying the same online content and services regardless of the EU country we are in. <p>The Digital Single Market Strategy, COM (2015) 192 Final, contains actions to improve the "free flow of data", an important topic for EULF, as there is strong</p>

POLICY AREA	POLICY / ACTION	RELATIONSHIP
		demand for improved sharing of geospatial data.
Communications Networks, Content and Technology (DG CNECT)	Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information (PSI Directive) COM (2011) 882 final - Open data: An engine for innovation, growth and transparent governance Guidelines on recommended standard licences, datasets and charging for re-use Report on high value datasets from EU institutions	<p>The PSI Directive was due to be transposed into national laws by July 2015. Closely related are European policies and actions on open data, including the European Data Portal and the G8 Commitments on open data.</p> <p>There is a strong link with INSPIRE. In various countries, activities are under way to include INSPIRE data in national open data portals. Also, the G8 Commitments on open data consider geographic information and environmental information to be high value data, both of which are the focus of INSPIRE. For these data sets, an action plan has been developed as to how and when they will be released.</p> <p>In 2014, the Commission published guidelines on licensing and charging and datasets to be made available for re-use as a priority. These are highly relevant for geospatial data.</p> <p>Various countries (e.g., Germany, France) are working to link their national INSPIRE portals to their open data portals. The UK does not have an INSPIRE portal and uses its open data portal as the access point for INSPIRE data.</p>
Communications Networks, Content and Technology (DG CNECT)	EU eGovernment Action Plan 2016-2020 Accelerating the digital transformation of government – COM(2016)179 final	<p>The vision is that by 2020, public administrations and public institutions in the European Union should be open, efficient and inclusive, providing borderless, personalised, user-friendly, end-to-end digital public services to all citizens and businesses in the EU.</p> <p>The EULF Programme is in synergy with Action 19 of the eGovernment Action Plan, which aims to “accelerate the deployment and take-up of the INSPIRE Directive data infrastructure”.</p>

POLICY AREA	POLICY / ACTION	RELATIONSHIP
Communications Networks, Content and Technology (DG CNECT)	EU eGovernment Benchmark Framework 2012-2015 EU eGovernment Benchmarking Report 2016	Location information is fundamental for many public services to citizens and businesses. The aim of the EULF was to promote and stimulate the use and integration of location information in public services as well as in processes with a strong geographical component. The EULF focus areas addressed key topics in the eGovernment Benchmarking Framework.
Communications Networks, Content and Technology (DG CNECT)	European Cloud Initiative – Building a competitive data and knowledge economy in Europe – COM(2016)178 final	The European Cloud Initiative aims to develop a trusted, open environment for the scientific community for storing, sharing and reusing scientific data and results: the European Open Science Cloud. It aims to deploy the underpinning super-computing capacity, the fast connectivity and the high-capacity cloud solutions they need via a European Data Infrastructure. Focussing initially on the scientific community, the user base will be expanded to the public sector and to industry, creating solutions and technologies that will benefit all areas of the economy and society. Achieving this will require a collaborative effort open to all those interested in exploiting the data revolution in Europe as an essential component of global growth.
Communications Networks, Content and Technology (DG CNECT)	The Single Market Act-II (COM(2012)573) set out 12 new concrete priority actions, to reenergise the Single Market around four main drivers: networks, mobility, the digital economy and cohesion.	The EULF was in line with the objectives of the Single Market Act-II. This includes data exchange and cross-border applications to exploit developments in network infrastructure in key areas such as energy (smart grids and meters, liberalisation of the internal energy market to make it more sustainable, competitive and secure), transport (ITS), labour market participation (e.g. facilitating cross-border mobility through planning commuting across borders etc.) and

POLICY AREA	POLICY / ACTION	RELATIONSHIP
		educational attainment (e.g. facilitating access to data for research and innovation by higher education establishments).
Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) / Communications Networks, Content and Technology (DG CNECT)	The Competitiveness & Innovation Framework Programme (CIP) Information and Communication Technologies Policy Support Programme (ICT-PSP) has co-funded a project from a consortium of national mapping and cadastre agencies and other partners to develop a European Location Framework , that will harmonise base mapping across European borders. The project started in 2013 and ran to October 2016, when the services were transferred to EuroGeographics for them to manage.	The ELF project was one of the partners in the EULF Transportation Pilot. ELF gazetteer services may be used for a Pan-European gazetteer envisaged in the EULF gazetteer feasibility study.
Informatics (DG DIGIT)	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions - Towards interoperability for European public services - COM(2010)744 final ISA/ISA² Programmes	The EULF contributed to COM(2010)744 final by facilitating interoperability for geospatial components in e-government contexts. It has developed a series of outputs in the ISA Programme and will be further enhanced and applied as a framework in the ISA ² Programme, through the ELISE action. The ISA ² programme supports the development of digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services.
Informatics (DG DIGIT)	DG INFO has funded various projects which have looked at harmonising information involving a location context, such as addressing (EURADIN, ESDIN , EDN), ITS (ROSATTE , Smartfreight, Geonet) and Energy (EuroGeoSource , Thermamap, SOPCAWIND).	The EULF promoted what has been achieved, investigated and shared lessons learned and identified requirements and actions that will improve information exchange and harmonisation for these and other initiatives in the future.

POLICY AREA	POLICY / ACTION	RELATIONSHIP
Informatics (DG DIGIT)	ICT Assessment as part of the Better Regulation	The implementation of almost any new EU legislation requires the support of ICT systems, e.g. for secure cross-border exchange of information between authorities, for the delivery of online public services to citizens and/or business, information processing and publication through web-based portals, etc. EULF provided guidelines to support public administrations at EU and MS level in realising effective use of location information, including alignment between different policies dealing with location information.
Energy (DG ENER)	Energy Efficiency of Buildings Directive 2010/31/EU of 19 May 2010 on the energy performance of buildings (EPBD Directive) Delegated Regulation (EU) No 244/2012 of 16 January 2012 supplementing Directive 2010/31/EU on the energy performance of buildings by establishing a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL – Progress by Member States in reaching cost-optimal levels of minimum energy performance requirements	<p>The INSPIRE 'buildings' theme has three levels, '1' is mandatory, '2' and '3' are optional.</p> <p>Under the EPBD timetable, new standards for certification and inspection have to be in place by 2015. By 2018, new buildings have to be (nearly) zero energy.</p> <p>The new standards have to take account of INSPIRE - but no details are mentioned.</p> <p>The INSPIRE specification largely involved cadastre institutions. Involvement of construction and utility organisations is needed to determine the EPBD data specifications. INSPIRE level 1 will probably not be sufficient. Also, different standards are currently used in different MS. European guidelines are being worked on.</p> <p>The EULF developed a pilot project to address the data needs of the different Directives, using INSPIRE as a unifying factor.</p>
Environment (DG ENV)	Actions under the Commission Work programme for 2016 on a connected digital single market and on energy efficiency and climate change	The EULF complemented existing actions under INSPIRE to provide a more accessible knowledge base to develop and monitor EU-wide policy. Key initiatives performed are:

POLICY AREA	POLICY / ACTION	RELATIONSHIP
		<ul style="list-style-type: none"> • Developing the framework for a low-carbon economy; • Framing a new strategy for climate change adaptation; • Reviewing waste legislation to look at how new markets and better recycling can contribute to growth; • Adapting the EU air quality policy framework; • Finalising the new agriculture and fisheries policies and regional / rural development programmes; • Promotion of resource efficient maritime areas; and • The EU Emissions Trading System 2013/20.
Environment (DG ENV)	<u>Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services.</u>	The EULF project builds on the technical guidance of this regulation.
Environment (DG ENV)	<u>Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services.</u>	The EULF project builds on the technical guidance of this regulation.
Environment (DG ENV)	<u>Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - Towards a Shared Environmental Information System (SEIS) – COM(2008)0046</u>	The EULF project contributed to the SEIS Implementation Plan, in particular in the area of e-Environment services. It also promoted best practice and Commission recommendations on harmonising publication schemes involving INSPIRE and SEIS.
Environment (DG ENV)	<u>Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the</u>	Legal basis for the EULF project.

POLICY AREA	POLICY / ACTION	RELATIONSHIP
	European Community (INSPIRE) .	
Environment (DG ENV)	Habitats and Birds Directives – Natura 2000	The Natura 2000 programme has developed a comprehensive data model and information system for monitoring biodiversity throughout Europe. This was taken into account during the development of the INSPIRE data specifications for the four related themes (protected sites, biogeographical regions, habitats and biotopes, and species distribution). However, there is a continuous need for improving the data model to host new requirements and reflect changed realities. In this case, regular alignment with INSPIRE specifications might be needed. Also global efforts in this field such as the Global Biodiversity Information Facility (GBIF) might influence the standardisation efforts.
Environment (DG ENV)	Marine Strategy Framework Directive 2008/56/EC (MSFD) – e-Reporting	The MSFD requires reporting on environmental status, environmental targets, monitoring programmes and the programme of measures that should be applied to marine (sub)-region. The reporting obligations started in 2012. In 2018 a report on the first 6-year cycle is required. MSFD Article 19 includes a requirement that data used in initial assessments and stemming from monitoring programmes should be compliant with INSPIRE. The EULF Marine Pilot project explored the links between MSFD and INSPIRE, raising awareness and proposing practical guidelines on how INSPIRE can support the reporting of ecological indicators for the MSFD, following the principle “collect once, use many times”.
Internal Market, Industry,	COM(2010)308 final Communication from the	According to the INSPIRE implementing rules for three

POLICY AREA	POLICY / ACTION	RELATIONSHIP
Entrepreneurship and SMEs (DG GROW)	<p>Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions "Action Plan on Global Navigation Satellite System (GNSS) Applications"</p> <p>Transport applications of the Global Navigation Satellite Systems – European Parliament resolution of 7 June 2011 on transport applications of Global Navigation Satellite Systems – short- and medium-term EU policy (2010/2208(INI))</p>	<p>dimensional and two dimensional coordinate reference systems, the European Terrestrial Reference System 1989 (ETRS89) is relevant in areas within its geographical scope, or the datum of the International Terrestrial Reference System (ITRS) or other geodetic coordinate reference systems compliant with ITRS in areas that are outside the geographical scope of ETRS89. In the Inter Service Consultation 24943 (2013) on the "2013 work programme of the European Satellite navigation programmes (EGNOS & GALILEO)" the issue of temporal and geodetic compatibility with INSPIRE was flagged. A better understanding is needed of the synergies and implications of GNSS and INSPIRE legislation and implementation. Possible actions of ELISE in this respect are to:</p> <ul style="list-style-type: none"> • carry out a study to understand if GNSS services have implications on current and future GI standards development (i.e. EUREF, ISO/CEN/OGC); • contribute to Action 17: 'The European Commission will promote the use of EGNOS and GALILEO in surveying in the Member States and third countries'. The capabilities of EGNOS and GALILEO for improving the update of geographical databases could be explored by such means as exchanges of best practice and coordination among Member States; • help promote downstream use of GNSS location-related data; • identify and progress an EULF cross-border pilot involving GNSS data; • arrange GSA participation in EULF working group / expert group.

POLICY AREA	POLICY / ACTION	RELATIONSHIP
Internal Market, Industry, Entrepreneurship and SMEs (DG GROW)	Communication from the Commission to the European Parliament, the Council, and the European Economic and Social Committee – A strategic vision for European standards: Moving forward to enhance and accelerate the sustainable growth of the European economy by 2020 - COM(2011)311 final	The EULF project contributed to the realisation of the objectives of COM(2011)311.
Internal Market, Industry, Entrepreneurship and SMEs (DG GROW)	Communication on ICT Standardisation Priorities for the Digital Single Market – COM(2016)176	The EULF promoted the effective use of standards as one of its 'focus areas'.
Internal Market, Industry, Entrepreneurship and SMEs (DG GROW)	Regulation (EU) No 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010 Commission Implementing Decision C(2016) 743 final concerning the adoption of the 2016 Copernicus Work Programme	Cooperation between the INSPIRE community and GMES/Copernicus pre-dates the publication of the INSPIRE Directive in the Official Journal of the European Union. GMES has been supporting the meetings of the INSPIRE Expert Group, and has provided funding for a number of projects that gave INSPIRE not only invaluable reference material (e.g., RICE, Humboldt, GIGAS), but supported experts in their participation to the Drafting Teams and Thematic Working Groups (e.g. GIS4EU).
Internal Market, Industry, Entrepreneurship and SMEs (DG GROW)	Directive 2014/24/EU on Public Procurement	<p>The European Commission's public procurement strategy is rethinking the entire approach to purchasing, professionalising public buyers, cutting red-tape, and capitalising on the benefits of the digital revolution so that public administrations can be made more efficient, more effective, and more citizen and business-friendly.</p> <p>The EULF developed guidelines on the public procurement of geospatial technologies, which focus on the procurement of location information products and services, such as the acquisition</p>

POLICY AREA	POLICY / ACTION	RELATIONSHIP
		of new location data to support applications, the acquisition of solutions for using location data and services in e-Government processes and products and/or services for making data interoperable and/or accessible.
Justice (DG JUSTICE)	General Data Protection Regulation (REGULATION (EU) 2016/679)	The EULF has published location data privacy guidance outlining the key obligations that public administrations should comply with when handling personal location data and raising awareness about the importance of location data privacy, highlighting the implications and risks associated with the processing of location data, using examples that are relevant in this context. The guidance discusses the implications of the new GDPR and makes recommendations on its application.
Maritime Affairs and Fisheries (DG MARE)	Communication Marine knowledge 2020 Marine data and observation for smart and sustainable growth (COM(2010)461 final) COMMISSION STAFF WORKING DOCUMENT Interim Evaluation of the European Marine Observation and Data Network Accompanying the document Green Paper Marine Knowledge 2020: from seabed mapping to ocean forecasting GREEN PAPER Marine Knowledge 2020 from seabed mapping to ocean forecasting COMMISSION STAFF WORKING DOCUMENT Marine Knowledge2020: roadmap Accompanying the document COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE	<p>Among the aims of Marine Knowledge 2020: competition and innovation amongst users and re-users of marine data by providing wider access to quality-checked, rapidly-available coherent marine data. There are references with INSPIRE, SEIS, PSI, WISE.</p> <p>To this respect, the EULF marine pilot aimed at fostering the knowledge and the use of INSPIRE in EU marine data communities, including EMODnet, for marine data collection, monitoring and reporting, following the principle “collect once, reuse many times”.</p>

POLICY AREA	POLICY / ACTION	RELATIONSHIP
	COMMITTEE OF THE REGIONS Innovation in the Blue Economy realising the potential of our seas and oceans for jobs and growth	
Maritime Affairs and Fisheries (DG MARE)	White Paper on Integrating Maritime Surveillance: the Implementation of the Common Information Sharing Environment for the surveillance of the EU maritime domain (CISE) Common Information Sharing Environment - Roadmap Sustainability and Efficiency of Visions for CISE CISE - Communication from the Commission to the European Parliament and the Council - COM(2014)451 final	<p>CISE is one of the actions under the ISA programme. It aims to improve interoperable and trusted cross-sector and cross-border data exchange between public administrations across seven policy areas: maritime safety and security, marine environment and pollution, fisheries control, border control, law enforcement, customs and defence.</p> <p>There is a relationship with INSPIRE, but more on the interoperability side and on the sharing of cross-border data.</p>
Maritime Affairs and Fisheries / Environment (DG MARE / DG ENV)	Maritime Spatial Planning at the European Commission Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning	<p>The Maritime Spatial Planning Directive points to encouraging relevant stakeholders to share information and make use of INSPIRE and Marine Knowledge 2020, and other tools for data collection.</p>
Mobility and Transport (DG MOVE)	Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport. Commission Delegated Regulation (EU) No 886/2013 of 15 May 2013 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to data and	<p>The EULF included actions to enable location-based services of relevance to the transport sector.</p> <p>The EULF project undertook a Transportation pilot to assist in the development and rollout of the TN-ITS specifications for road data, taking account of the INSPIRE road network specifications. This built on standards work in the ROSATTE project. It involved public sector and private sector partners in Norway and Sweden. Further rollout in other Member States is planned through the Connecting</p>

POLICY AREA	POLICY / ACTION	RELATIONSHIP
	<p>procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users</p> <p>Commission Delegated Regulation (EU) No 305/2013 of 26 November 2012 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the harmonised provision for an interoperable EU-wide eCall</p> <p>As part of the ITS Action Plan, a report on The Availability of Public Data for Digital Maps (Dec 2011) recommends adopting the INSPIRE organisational approach and using the ROSATTE specifications for road networks as an extension to the INSPIRE specifications.</p> <p>http://ec.europa.eu/transport/themes/its/road/action_plan/</p> <p>http://ec.europa.eu/transport/themes/its/road/action_plan/public_data_en.htm</p> <p>CEN TC/278 Intelligent Transport Systems standards</p>	<p>Europe Facility – Transport programme.</p>
<p>Mobility and Transport (DG MOVE)</p>	<p>EU Rail Interoperability legislation - Register of Infrastructures (RINF)</p>	<p>The International Union of Railways (UIC) have to comply with different Directives involving data collection and management such as the Register of Infrastructures required by the EU Interoperability legislation - where compliance is required by 2015. They carried out a feasibility to create a shared format for data exchange based on INSPIRE. A topological data model and appropriate identifiers need to be agreed. The approach could then be applied to other information requirements.</p>

POLICY AREA	POLICY / ACTION	RELATIONSHIP
Mobility and Transport (DG MOVE)	With regard to air traffic information, the Single European Sky (SES) legislative framework, supplemented by the Single European Sky ATM Research (SESAR) programme, aims to increase the overall performance of the Air Traffic Management system in Europe.	<p>The SESAR programme has been leveraging INSPIRE. SESAR contributed to drafting of the (Air) Transport Network theme, with the aim of harmonising the INSPIRE theme and the existing ATM specific specification (the Aeronautical Information Exchange Model (AIXM)) as much as possible. SESAR also used the output of INSPIRE to develop its own work: not only the technical aspects but also the legal aspects of INSPIRE were taken into account.</p> <p>A 'Study on the legal aspects of ATM services' (European Organisation for the Safety of Air Navigation, 2012) was performed, considering INSPIRE as an example of what actions can be taken in terms of public-private partnership, PSI, IPRs, licensing, funding and pricing policy. Currently, the ATM and INSPIRE communities still work in parallel, although further alignment and coordination between both communities would provide additional benefits.</p>

Other relevant EU policies:

POLICY AREA	POLICY / ACTION	RELATIONSHIP
Europe	United Nations Initiative on Global Geospatial Information Management (UN-GGIM): Europe	UN-GGIM Europe is the regional committee of the UN-GGIM. It uses the INSPIRE Data Model for the quality assurance of core reference datasets. The EULF Work Programme included actions on improving coordination with UN-GGIM Europe activities.
European Union Agency for Network and Information Security	Privacy and Data Protection by Design	This report contributes to bridging the gap between the legal framework and the available technological implementation measures by providing an inventory of existing approaches, privacy design strategies, and technical building blocks of

POLICY AREA	POLICY / ACTION	RELATIONSHIP
		<p>various degrees of maturity from research and development. Starting from the privacy principles of the legislation, important elements are presented as a first step towards a design process for privacy-friendly systems and services.</p>

3. National e-Government Strategies

COUNTRY	STRATEGY	KEY FEATURES
Austria	e-Government Vision 2020 e-Government Action Plan 2011-2015	<p>The e-Government Vision 2020 sets out the e-Government mission statement and basic strategic principles, which are implemented in the e-Government Action Plan 2011-2015. eID, innovative services and open standards are key elements. The e-Government principles are:</p> <ul style="list-style-type: none"> • Proximity to citizens • Convenience through efficiency • Trust and security • Transparency • Accessibility • Usability • Data security • Cooperation • Sustainability • Interoperability • Technological neutrality
Belgium	Action Plan: Digital Belgium e-Government strategy	<p>Digital Belgium is an action plan that outlines the national digital long-term vision and translates this into clear ambitions. Belgium aims to reaffirm its place on the digital map as based upon following five priorities with three to six priority projects each:</p> <ol style="list-style-type: none"> 1. Digital economy; 2. Digital infrastructure; 3. Digital skills and jobs; 4. Digital trust and digital security; and 5. Digital government. <p>The Federal eGovernment strategy for social sector aims to create a single virtual Public Administration while respecting the privacy of users, as well as the specificities and competences of all Government bodies and administrative layers. Its main objective is to improve the delivery of public services for citizens and businesses by rendering it faster, more convenient, less constraining and more open. The current strategy is outlined around the following axes:</p> <ul style="list-style-type: none"> • the formulation of specific objectives, like the optimal service delivery to citizens, the limitation of administrative burden and the

COUNTRY	STRATEGY	KEY FEATURES
		<p>optimisation of the efficiency and effectiveness of public services;</p> <ul style="list-style-type: none"> the explicit choice of a collaboration among all stakeholders in order to create added value for users of eGovernment services; the use of a common vision for the use of information in terms of modelling information, mandatory reporting of supposed errors, electronic exchange of information, unique collection of information; the use of a common vision for information security and protection of privacy; the maximum use of common elements for networks, eID, middleware interconnected and related basic services; the role of the Crossroads Bank for Social Security (CBSS) as a driver for the development of eGovernment in the social sector; the establishment of a strong partnership among all social security institutions.
Bulgaria	Strategy on the development of E-government in the Republic of Bulgaria (2014 - 2020)	<p>The main goal of this strategy is to outline the framework for all current and new activities in the e-government. It includes:</p> <ul style="list-style-type: none"> Analysis of the existing conditions; E-government vision in the Republic of Bulgaria; Strategic targets; Sector policies for e-government; Activities for the achievement of goals; Coordination and management of the Strategy's implementation; E-government model; Model of governance: Information and Technological model.
Croatia	e-Croatia 2020 Strategy	<p>The objectives of the 2020 Strategy include:</p> <ul style="list-style-type: none"> Improved business productivity of public administration through the use of ICT and new skills within public administration and toward users; Enhanced quality of life through the use of public administration e-services; Improved relationship between citizens and state administration through ICT use;

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • Insurance of secure environment for the provision of public administration e-services; • Increased competitiveness of economy through the use of public administration e-services; • Opening up space for ICT-based innovations in public administration through the cooperation of public administration, scientific and business entities, and • Inclusion in the European Digital Administrative Space.
Cyprus	The Digital Strategy for Cyprus Revised Information Systems Strategy 2012-2015	Presents a plan for 2012-2020 to: <ul style="list-style-type: none"> • increase participation of citizens and businesses in the digital society; • expand the infrastructure; • extend the use of public e-Services by citizens; • improve e-skills and digital literacy; • provide more online public services to citizens and businesses; • promote digital entrepreneurship; • promote green ICT. The associated revised IS Strategy includes objectives to: <ul style="list-style-type: none"> • enhance procedures and standards for the implementation of information systems; • develop a new government security policy; and • prepare a national e-Government interoperability framework, based on the European Interoperability Framework (EIF).
Czech Republic	National Cyber Security Strategy for 2015-2020 Action Plan to the National Cyber Security Strategy Strategic Framework of the Development of Public Administration in	The National Cyber Security Strategy has 7 main goals: <ul style="list-style-type: none"> • Ensuring efficiency and strengthening of all structures, processes and cooperation in the field of cyber security; • Active international co-operation; • Protection of the national Critical Information Infrastructure and Important Information Systems • Co-operation with private sector; • R&D/Consumer's trust;

COUNTRY	STRATEGY	KEY FEATURES
	the Czech Republic for 2014 - 2020 International Competitiveness Strategy of the Czech Republic for the period 2012-2020 (SMK)	<ul style="list-style-type: none"> • Support to the education, awareness and the development of the information society; and • Support to the development of Police's capabilities to investigate and prosecute information crime. <p>The Strategic Framework for the Development of Public Administration formulates four targets to be further elaborated by the Government Council, and achieved within the coming six-year period. Specified priorities cover public administration modernisation, which includes the evaluation of its current functioning, proposing and implementing performance improvement measures, improvement of services availability via eGovernment tools and continuous human resources professionalization and development.</p> <p>The International Competitiveness Strategy of the Czech Republic for the period 2012-2020 (SMK) includes the following objectives:</p> <ul style="list-style-type: none"> • Systematisation and improvement of public administration by promoting professionalism and efficiency; • Efficient management of public assets and resources with a focus on tight control of public finances; • Simplification of public access to government services and information provided by public administrations; • Systematic improvement of the process of regulation and of the ability of the public to access legislation online.
Denmark	<p>E-government Strategy 2016-2020</p> <p>Joint Public Digital Strategy: The Digital Road to Future Prosperity 2011-2015</p> <p>Strategy for Digital Welfare 2013-2020</p>	<p>The new eGovernment Strategy 2016-2020 has not been launched yet. However, terms of reference for the new strategy have already been set. These terms of reference have defined three key milestones of the strategy:</p> <ul style="list-style-type: none"> • A productive and efficient public sector; • Public services must create value for citizens and businesses; • Public digitization must support business growth. <p>On top of that, a number of specific themes have been selected to be included in the new strategy, namely automation of public administrative procedures, better user experiences for citizens and businesses, digital welfare, data sharing, a framework for coherent</p>

COUNTRY	STRATEGY	KEY FEATURES
		<p>digital public management, data protection, IT infrastructure solutions, management of IT projects, and management of the joint public digitisation efforts.</p> <p>The Strategy for Digital Welfare 2013-2020 aims to modernise, rethink and make more effective and efficient the production and provision of public welfare services. The goal is to maintain or increase the quality of public welfare services while at the same time reducing public expenditure.</p>
Estonia	Estonian Information Society Strategy 2014-2020	<p>The Strategy focuses on the use of ICT and smart solutions for the creation of an enabling environment assurance. The higher goal is thus to support the competitiveness of the economy through ICT, human well-being and an increase in the efficiency of state government. The Information Society Strategy includes a number of steps necessary for development activities. Indicatively these steps include the following:</p> <ul style="list-style-type: none"> • Construct a base ready for the ultra-fast Internet network, enabling that at least 60 % of all Estonians use the Internet on a daily basis. • Enhance the cross-border capability of eServices in joint cooperation with the Nordic Institute of eGovernment Innovation aiming at developing X-roads, eIdentities, digital signatures, etc. • Enable that by 2020, 20 % of the population uses the digital signature. Provide people with the technological and organisational infrastructure to take control over the use of their data and know at any time who, why, when and how these data are being used by their government. • Modernise Estonian public eServices and implement uniform quality standards and support reform of old IT solutions. • Improve related policies for better decision-making and service provision. • Launch a virtual or eResidency by issuing a digital identity to non-residents and providing its eServices in a similar way to Switzerland's banking industry.

COUNTRY	STRATEGY	KEY FEATURES
Finland	Open Government Action Plan	The plan commits Finland to make online services more consumer-friendly and focuses on the youth participation in Government and Open Data. The three key teams of the 2015-2017 action plan are openness, accountability and enhancing engagement. The goal is to get open government enhancement to be part of each and every development project and programme. Ministries, agencies and municipalities are not asked to set up individual open government projects, instead enhancing open government should be part of all work.
France	Roadmap for the Digital Economy	This strategy revolves around three pillars, which are to 'Provide opportunities for youth', 'Reinforce competitiveness', and 'Promote our values in society'.
FYROM	Short-term national ICT strategy (2016-2017)	<p>The main goal of the Strategy is to present the necessary guidance, tools and measures to increase the contribution of the ICT industry towards sustainable economic development and to support job creation in the ICT and other industries supported by focusing on the following four (4) fields:</p> <ul style="list-style-type: none"> • Providing business support for ICT companies; • Creating an ICT society; • Promoting public-private dialogue (PPD); and • Improved formal and informal education, including lifelong learning (LLL).
Germany	Digital Strategy 2025	<p>Ten areas of action were identified to realize a digital Germany by 2025:</p> <ul style="list-style-type: none"> • Provide gigabit fibre network for Germany by 2025 • Establishing new entrepreneurial culture and cooperation opportunities for start-ups • Create a new regulatory framework for more investment and innovation • Driving forward the "Smart Networking" of infrastructure areas • Strengthening data security and develop a data sovereignty • Enable new business models for SMEs, Crafts and Services • Modernize production in Germany with Industry 4.0

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> Investing in research, development and innovation with regards to digital technologies Realize digital education at all ages Establish a Digital Agency as a competence centre.
Greece	<p>Strategy for Digital Growth 2014-2020</p> <p>Strategy for e-Government 2014-2020</p> <p>Action plan for e-Government 2014 – 2020</p>	<p>The vision of the Strategy for Digital Growth 2014-2020 is: 'To Transform the productive model in a sustainable way with broad and effective use of ICT everywhere while Greece will become a technological regional centre of innovation, excellence and service with international orientation, friendly to humans and investment.'</p> <p>The main areas of Improvement will be:</p> <ul style="list-style-type: none"> Open data Interoperability Smart applications and services Access Critical mass Digital skills IT Governance and change management The main Strategic objectives are the following: Access to Advanced Digital Infrastructures Smart and viable ecosystem for better quality of life Competitive entrepreneurship in the international digital environment Smart operation and interconnection of the State Digital cohesion to tackle the social challenges <p>The Strategy for e-Government has the following three main strategic objectives:</p> <ul style="list-style-type: none"> Modernisation of the State and Public Administration; Reconnect Citizens with State and Public Administration; Horizontal ICE policy co-ordination in Public Administration. <p>The 7-year Action Plan includes the actions needed for the implementation of the strategy for e-government 2014-2020 and administrative</p>

COUNTRY	STRATEGY	KEY FEATURES
		reform and the actions that will be financed by the programmes of the new programming period 2014-2020.
Hungary	National Info-communication Strategy 2014-2020 • Public Administration and Civil Service Development Operational Programme 2014 - 2020	<p>The National Info-Communication Strategy intends to give a comprehensive overview on the situation of the Hungarian information society and the ICT market, to define the ideal target situation and to identify professional trends and development targets in info communications for the same period as the 2014-2020 financial period. The strategy covers those components of the digital ecosystem in the case in which any task, backlog, market error or bottleneck can be clearly identified which may be handled more effectively by the state with the help of public policy, regulatory or support policy instruments than it would be possible through the organic development of the market. The Strategy prepares the status analysis, defines the targets and identifies the tools along the following pillars:</p> <ul style="list-style-type: none"> • Digital Infrastructure; • Digital Competences; • Digital Economy. <p>The Public Administration and Civil Service Development Operational Programme (OP) will invest over 935 million euros, including nearly €795 million from EU funding (75.7 % from the European Social Fund and 24.3 % from the Cohesion Fund), to reinforce the services provided by the public authorities. It shall help Hungary to increase the efficiency of its public administration via development of the quality public services that are essential to attain sustainable growth in line with the Europe 2020 Strategy. Among others, the following results are expected from the programme:</p> <ul style="list-style-type: none"> • 400 procedures will benefit from the administration lead time will reduction; • 250 e-governance procedures will be developed; • 63,800 public servants will participate in competence development programmes; and • 1000 local municipalities will be connected to the integrated public administration information system.
Iceland	National Cyber Security Strategy 2015 – 2026	The strategy is intended to address the protection of important elements of the infrastructure in Iceland and the responses called for as a response to the growing cyber threats which pose

COUNTRY	STRATEGY	KEY FEATURES
	First Action Plan 2015-2018	<p>a hazard to the government, the economy and the ordinary citizen.</p> <p>The four key objectives of the current Icelandic cybersecurity strategy are the following:</p> <ul style="list-style-type: none"> • Capacity building: the public, enterprises and government should have the knowledge, skills and equipment needed to cope with cyber security threats. • Increased resilience: Key factors in enhanced resilience are greater capacity in the fields of assessment, preparedness and response. • Strengthened legislation: legislation should reflect the international demands and obligations the country undertakes regarding cyber security and the protection of personal data; and it also must support innovation and the development of security related services like hosting. • Tackling cybercrime: the police should have, or have access to, the professional knowledge, skills and equipment needed to resolve issues concerning cyber security.
Italy	Digital Agenda 2020 National Ultra-Wide Band Plan Strategy for Digital Growth	<p>The Italian Digital Agenda includes the actions and rules for technology development, innovation and digital economy. It is composed of two main strategies: The National Ultra-Wide Band Plan and the Strategy for Digital Growth.</p> <p>The objective of the Strategy for the Italian Banda Ultra-Wide is to remedy this infrastructure gap and market, creating the most favourable conditions for the integrated development of telecommunications infrastructure fixed and mobile, with actions such as:</p> <ul style="list-style-type: none"> • incentives aimed at bringing down the barriers of cost of implementation, simplifying and reducing administrative burdens; • coordination in the management of the subsurface through the establishment of a cadastre of below and above ground to ensure the monitoring of operations and the best use of existing infrastructure; • adaptation to other European countries in the field of electromagnetism limits; • tax incentives and credit at subsidized rates in the most profitable areas to promote the "quantum leap"; • public incentives to invest in marginal areas;

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • direct realization of public infrastructure in the areas of market failure. <p>The Strategy for Digital Growth aims at growing digital citizens and businesses, also using the levers public. Integrate what has been achieved in a subsidiary or under construction in both the public sector, both in the private and must be realized a complete synergy with other public strategies in place, is attributable to the national government is a regional responsibility, to put helpfully "to system "objectives, processes and results.</p>
Latvia	Information Society Development Guidelines 2014-2020 National cyber-security strategy 2014-2018	<p>The Information Society Development Guidelines for 2014 - 2020 have been elaborated to ensure continuity of existing policies and to determine the priorities in the area of Information and Communication Technology (ICT) for the European Union Structural Funds Programming period for 2014 – 2020. The goal of the Guidelines is to provide the opportunity for anyone to use ICT, to create a knowledge-based economy and to improve the overall quality of life by contributing to the national competitiveness, and increasing an economic growth and job creation.</p> <p>The focus of the Guidelines is economic growth and job creation. The main priorities and action lines are on: ICT education and eSkills; widely available access to the Internet; modern and efficient public administration; e-services and digital content for the public; cross-border cooperation for Digital Single Market; ICT research and innovation; and trust and security.</p> <p>The national Cyber Security Strategy 2014 - 2018 defines key areas of work, where education, governance of ICT resources, rule of law in the cyber space, crisis management and international cooperation are the top priorities. In order to achieve the main goals and aims, strong cooperation with private sector is recognized very critical, therefore, strengthening of partnership between private and public sector will be among top priorities in the future as well. It was adopted on 17 February 2014.</p>
Liechtenstein	IT and eGovernment Strategy (2008-2011)	Liechtenstein's IT and eGovernment Strategy 2011 aims to address future challenges with the best possible efficiency. In particular, the strategy has the following three main goals:

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • Establish a modern Public Administration and transform the country into an attractive business location • Fulfil external requirements • Meet users' needs
Lithuania	Information Society Development Programme 2014-2020	<p>The purpose of the programme is to define the priorities, objectives and tasks of information society development in order to maximise the advantages provided by information and communication technologies, primarily the internet as a very important instrument for economic, cultural and social activities, the use of which allows one to provide or receive progressive e-services, work, access entertainment, communicate and freely express opinions.</p> <p>The Programme sets the following priorities:</p> <ul style="list-style-type: none"> • Enhancement of the Lithuanian residents' ability to use the ICTs; • Development of the electronic content and services and promotion of use thereof; • Promotion of Lithuanian culture and Lithuanian language by ICT measures • Encourage businesses to use ICT; • Development of the ICT infrastructure; • To ensure the development of safe, reliable and interactive ICT infrastructure.
Luxembourg	Digital Lëtzebuerg Digital Strategy for Education	<p>This strategy covers eGovernment services but goes beyond that narrow scope to establish a solid financial foundation for innovation, provide teaching and training of new competences and help create new markets (big data, smart grids, health IT, financial technology, virtual currencies...) for Luxembourg's rapidly growing IT sector. In order to maximise the impact of this strategy, it will be applied horizontally and will become a key component of every political decision.</p> <p>On 20th May 2015, the Minister of Education, Children and Youth, presented the Digital Strategy for Education. The strategy has two key objectives:</p> <ul style="list-style-type: none"> • Digital education: to prepare young people to work in a complex and constantly changing environment; and

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> Digital for education: to promote new learning strategies, software and innovate educational projects.
Malta	National Portal BusinessFirst Portal Digital Malta 2014-2020 Malta Information Technology Agency (MITA) Strategy (2015 – 2017)	<p>Malta has been in the forefront in the provision of user-centric online public services for both citizens and businesses. The focus of the eGovernment unit is now to bring all the Government of Malta online services together in one simple and seamless framework. The national portal 'Gov.mt' is the central source for all citizen services and governmental information, across the board, whilst the BusinessFirst is the national portal for businesses. The government plans to implement an aggressive eGovernment programme geared at transforming public services into catalysts of a more competitive economy for Malta. The main targets are enlisted in the Digital Malta Strategy (2014-2020).</p> <p>The core principles underpinning the implementation of the Digital Malta vision are:</p> <ul style="list-style-type: none"> Ensuring all citizens are offered the possibility to benefit from ICT as a fundamental right. Advocating proactive leadership, and delivering programmes that meet needs. Supporting national priorities in line with government policy, the National Reform Programme and the EU obligations. Engaging the private sector as an important player in the delivery of the Strategy. Optimising value and accountability. Ensuring collaboration between stakeholders to make the best use of national strategic information assets, encourage synergies and minimise fragmentation. Encouraging a more-environmentally friendly society through greener procurement, implementation and application of ICT. Supporting and enabling Research and Innovation (R&I) in identified areas of strength, capability and centres of excellence (smart specialisation). Adopting an open and experimental mind-set, capitalising on lessons learned from success stories and respecting best practices and international standards. Maximising opportunities from multiple funding sources, including European and international funding programmes and the private sector.

COUNTRY	STRATEGY	KEY FEATURES
		MITA launched a new Strategy that sets the development path for the period between 2015 and 2017. It sets out a vision to transform the Agency into "the Digital Leader for the Government of Malta." This is a bold but realistic vision. The Strategy establishes how the Agency needs to become an innovative, agile and open organisation with an empowered workforce.
Netherlands	Digital Government 2017 Vision Paper	With this Vision Paper, the government aims at improving digital government information and services, further reducing administrative burdens for citizens, and generating more efficiency. The new policy implies a digital by default approach, in which citizens will gain the right to interact with government in a digital way. Change of legislation is announced to arrange this right. The general principle for the interaction is 'digital where possible and personal where needed'. Another principle laid out in this vision paper is the strengthening of the position of citizens as a countervailing power to an increasingly interconnected e-government. By means of digital tools, citizens will be allowed to verify how they are registered, which organisations are using their data, and to correct their personal data if it is incorrect.
Norway	Norwegian eGovernment Program	Key principles under this eGovernment strategy include the following: <ul style="list-style-type: none"> • digitisation of the public sector is to free up resources for areas in need of more resources; Digital communication is to be the general rule for contact with the public sector; • The public sector is to provide unified and user-friendly digital services; • Login to public web services is to be simple and secure; • All citizens and businesses will receive mail from the public sector in a secure digital mailbox; • Citizens and businesses will be notified via SMS text messages and e-mail; • Necessary assistance will be provided to citizens to ensure they will be able to find and use digital services; • Development of ICT solutions will be viewed in the context of the public sector's work processes and organisation;

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • Protection of privacy and information security will be safeguarded; • Digitisation measures of relevance for several services will be coordinated.
Poland	National Development Strategy 2020 Digital Poland 2014-2020	<p>The National Development Strategy 2020 for Poland includes among other activities the introduction of uniform rules for eGovernment in administration. A set of planned actions are envisaged:</p> <ul style="list-style-type: none"> • Creation of a single IT centre for the whole government in order to implement uniform rules for eGovernment, such as ordering the equipment centrally, and concerning the type of software used as well as the exchange of information and communication. • Digitisation of public administration to simplify administrative processes and create structured digital knowledge resources; it will also make auditing the quality of public information possible, with a view to create a platform for information flow. • Electronic access to the widest possible range of public services, allowing full interaction with the office, and making it possible to handle matters at a distance. <p>The aim of the programme is to strengthen the foundations for the development of digital country, including broad access to high-speed Internet, efficient and user-friendly public eServices and the ever-increasing level of digital literacy in society. This programme resulted from a consultation of the Council that Poland remains significantly behind other Member States in the use of the developmental potential of ICT. In particular, the Council pointed out:</p> <ul style="list-style-type: none"> • low fixed broadband coverage, • relatively low efficiency of public administration, • relatively low level of use of eGovernment, • very low percentage of adults who engage in learning throughout life.
Portugal	<p>Simplex Programme</p> <p>EGov Innovation Hub</p>	<p>Under the motto A STRONG, INTELIGENT AND MODERN STATE, a new Simplex Programme will be launched to promote a better relationship between citizens and public administration, as well as the reduction of costs for companies. The main focus will be on:</p>

COUNTRY	STRATEGY	KEY FEATURES
	<p>PGETIC - Global Strategic Plan for ICT Rationalization and Cost Reduction (2012-present)</p> <p>National Administrative Modernisation Strategy</p> <p>Digital Agenda 2012-Present</p>	<ul style="list-style-type: none"> • Extend and renovate Simplex to all the public sector; • Promote innovation in the public sector • Re-launch SIMPLEX to the private sector in order to reduce time and costs of investment. <p>The EGOV Innovation Hub is a partnership between the Development Unit of the Agency for the Administrative Modernization (AMA), University of Minho and the Operational Unit on Policy-Driven Electronic Governance of the United Nations University (UNU-EGOV). The EGOV Innovation Hub aims to articulate synergies and develop the enormous potential for research, training and internationalization on the Electronic Governance area. Located in the Minho University (Guimarães, North of Portugal), the Hub promotes both the region and the country as an internationally-recognized centre of excellence on Electronic Governance in the triple perspective of public policies, technology and capacity building. The e-Gov Innovation Hub aims to foster actions in the context of research and development, internationalization and capacity building.</p> <p>The PGETIC plan is organized around five main action areas: improvement of governance mechanisms; cost reduction; using ICT to enhance administrative change and modernization; implementing common ICT solutions and eGovernment in Portugal; stimulating economic growth.</p> <p>Launched in March 2014, the National Administrative Modernization Strategy is based on the digital by default principle in order to reduce the bureaucratic burden on citizens and economic operators, by introducing transparency and efficiency and reducing the constraints generated by the slowness of the different procedural acts. It is not sufficient to provide services, as their quality needs to be high, which implies simplifying all processes and removing constraints.</p> <p>The aim of the Digital Agenda is to contribute to the development of the Digital Economy and the knowledge-based society, preparing the country for a new model of economic activity centred on innovation and knowledge and a new industrial policy, as a basis for the provision of new products and higher value-added services and targeted to international markets.</p> <p>Goals:</p>

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • To develop an adequate broadband infrastructure so that by 2020, all citizens will have access to broadband with a speed equal or faster than 30 Mbps and also, that 50% of households have access to broadband equal or faster than 100Mbps. • To increase by up to 50%, in comparison to 2011, the number of companies using ecommerce. 4 To ensure that 50% of the population is using e-government services, by 2016. • To rise/increase by 20%, in comparison to 2011, the amount of exports of Portuguese ICT services.
Republic of Ireland	Public Service ICT Strategy	<p>A new Public Service ICT Strategy has been developed by the Office of the Government Chief Information Officer (OGCIO) in collaboration with the Public Service Chief Information Officer (CIO) Council. The Strategy, which was approved by Government and published in January 2015, sets out the Government's overall approach to ICT and contains a series of principles to ensure momentum is maintained in this area. The Public Service ICT Strategy sets out a high-level vision to reinforce ICT's role in supporting Public Service Reform and transformation. It identifies a number of key strategic objectives that will set the future direction for innovation and excellence in ICT within the Public Service:</p> <ul style="list-style-type: none"> • Build to Share: creating ICT shared services to support integration across the wider Public Service to drive efficiency, standardisation, consolidation, reduction in duplication and control cost; • Digital First: Digitisation of key transactional services and the increased use of ICT to deliver improved efficiency within Public Bodies and provide new digital services to citizens, businesses and public servants; • Data as an Enabler: In line with statutory obligations and Data Protection guidelines, facilitate increased data sharing and innovative use of data across all Public Bodies to enable the delivery of integrated services, improve decision making and improve openness and transparency between Government and the public; • Improve Governance: Ensure that the ICT strategy is aligned, directed and monitored across Public Bodies to support the specific goals and objectives at a whole-of government

COUNTRY	STRATEGY	KEY FEATURES
		<p>level and with an emphasis on shared commitment; and</p> <ul style="list-style-type: none"> • Increase Capability: Ensure the necessary ICT skills and resources are available to meet the current and future ICT needs of the Public Service.
Romania	<p>National Strategy on Digital Agenda</p> <p>National Programme for Supercomputing 2010-present</p>	<p>The National Strategy on Digital Agenda for Romania targets directly the ICT sector, aims to contribute to the economic growth and increase competitiveness in Romania, both by direct action and support of development of effective Romanian ICT and through indirect actions such as increasing efficiency and reducing public sector costs in Romania, improving private sector productivity by reducing administrative barriers in relation to the state, improving the competitiveness of the labour force in Romania and beyond. The Strategy was developed in alignment with the Digital Agenda for Europe as framework of reference to define an overview on how to boost the digital economy for the period 2014 – 2020.</p> <p>There are four fields of action:</p> <ul style="list-style-type: none"> • eGovernment, Interoperability, Cyber Security, Cloud Computing, Open Data, Big Data and Social Media – increase efficiency and reduce the public sector costs in Romania by having a modern administration • ICT in Education, Health, Culture and eInclusion – support at a sectorial level that will ensure ICT investments create a positive impact in the social context. • eCommerce, Research & Development and Innovation in ICT – builds on the comparative advantages of regional Romania and supports economic growth in the private sector. • Broadband and Digital Services Infrastructure – ensures social inclusion and enables the benefits across all other fields of actions. <p>A key strategic step for promoting eGovernment strategy in Romania was taken in June 2010 with the realisation of the 'National Programme for Supercomputing', whose aim is to modernise the services and the information systems of the public administration. This technology allows public institutions to benefit from the equipment and infrastructure of the next generation services, and better control their expenditure, avoiding costly ICT purchasing and maintenance.</p>

COUNTRY	STRATEGY	KEY FEATURES
Slovakia	National Concept of eGovernment 2015 – 2020 Operational Programme Integrated Infrastructure 2014 - 2020 Strategic Document for Digital Growth and Next Generation Access Infrastructure (2014 – 2020)	<p>The National Concept of eGovernment is a conceptual document that defines the strategic Enterprise Architecture of eGovernment and its central coordination as well as the principles and objectives of its further development in accordance with the goals stated in the Strategic Document for Digital Growth and Next Generation Access Infrastructure. This document also describes an approach to a successful implementation based on the best practices and a solid eGovernment basis developed according to the National Concept of eGovernment from 2008. The updated concept is built around a vision of an innovative and open state that provides the citizens and businesses with user-friendly and easy-to-use services but at the same time operates inside in a complex way so that it can respond swiftly and effectively to the challenges of the dynamic modern era.</p> <p>Operational programme 'Integrated Infrastructure'³ (hereinafter also 'OPII') is a strategic document of Slovak Republic for EU funds absorption in the 2014 - 2020 period in the transport sector and in the area of enhancing access to, and use and quality of, information technologies. Overall focus of OPII, its specific objectives, and activities are set to ensure promotion of the fulfilment of the priorities of Europe 2020 strategy and National Reform Programme of Slovak Republic. Overall objective of OPII is to support sustainable mobility, economic growth, job creation and to improve the business climate through the development of transport infrastructure, public transport and information society.</p> <p>The Strategic Document for Digital Growth and Next Generation Access Infrastructure (2014 - 2020) defines a strategy for the further development of digital services and next generation access infrastructure in Slovakia. It also focuses on the fulfilment of the ex-ante conditionalities by means of which the European Union evaluates the readiness of Member States to implement investment priorities of their choice. The document particularly discusses the fulfilment of the two ex-ante conditionalities defined under thematic objective 2 "Enhancing access to and use and quality of information and communication technologies". The following investment priorities are proposed to be actively addressed to facilitate eGovernment development in the 2014-2020 period: Services for citizens</p>

COUNTRY	STRATEGY	KEY FEATURES
		and businesses; Effective public administration; Broadband / Next Generation Network.
Slovenia	SREP: Strategy on IT and electronic services development and connection of official records (2009-present) Public Administration 2020 – Slovenian Public Administration Development Strategy 2015 – 2020	<p>The SREP Strategy lays down a framework and steps which will enable the balanced development of public administration and electronic services, and its integration of solutions and best practices with other spheres of civil service work. Four areas are targeted, namely:</p> <ul style="list-style-type: none"> • Efficient and effective public administration based on eGovernment • Increase in user take-up of online services, with measures such as training, inclusion of those who are socially weaker and marginalised, and development of proactive services and user-friendly solutions • Sharing of infrastructure among public institutions, reuse of different modules and other horizontal measures to aid the development of interoperable solutions to complex problems • Support for cross-border Pan-European services. <p>The main purpose of the Public Administration Development Strategy is to set a platform for a real improvement of operation of Slovenia's public administration which is to undergo modernisation and renewal. The reform will be achieved by introducing a comprehensive management system through centralized strategic planning, introducing quality control systems for the simplification and modernisation of administrative processes, and monitoring and evaluation of the work done and targets to be achieved across all levels. Effective public administration cannot be achieved without efficient government IT. We will take advantage of new opportunities and potentials offered by modern technological and organizational approaches, among which one the priorities of the great potential is cloud computing.</p>
Spain	Digital Transformation Plan for the General Administration (GA) and the Public Agencies belonging to it (PAs) (ICT Strategy)	<p>This ICT Strategy sets out the global strategic framework to make progress in the transformation of the Administration, sets forth the guiding principles, goals and actions required to complete it, as well as the landmarks in the gradual development of Digital Government. These, in turn, shall become the basis on which the various ministries will draft their sectoral action plans for the digital transformation to be carried out in their areas, led by the Directorate</p>

COUNTRY	STRATEGY	KEY FEATURES
		<p>of Information and Communication Technologies (DTIC), i.e. the body in charge of the development of shared means and services.</p> <p>Five strategic goals structure the ICT Strategy for a real transformation of the GA and its PAs. These goals are:</p> <ul style="list-style-type: none"> • Increasing productivity and efficiency in the internal functioning of the public administrations as an element of national competitiveness; • Deepening the digital transformation of the public administrations, making the digital channel the preferred choice of citizens and businesses to interact with the Administration, as well as an apt means for public servants to perform their tasks, thus improving the quality of the services provided and enhancing the transparency of internal functioning; • Achieving greater efficiency in the provision of common ICT services in the public administrations, building synergies in the use of shared means and services so that more resources can be allocated to innovation and service expansion; • Implementing the smart corporate management of knowledge, data and information in order to capitalise on this asset and improve the efficiency of the public administration to the benefit of citizens, while ensuring the protection of their digital identity; and • Developing a corporate security and usability strategy
Sweden	<p>Open Government Partnership Action Plan (2014 – 2016)</p> <p>Putting the citizen at the centre (2012 – present)</p> <p>Swedish Digital Agenda</p>	<p>By joining the Open Government Partnership (OGP) in 2011, Sweden reaffirmed its commitment to open government efforts, both in principle and in practise.</p> <p>The major identified challenge of the action plan is 'More Effectively Managing Public Resources and Increasing Corporate Accountability'. In order to attain this aim, five commitments have been identified for Sweden:</p> <ul style="list-style-type: none"> • Commitment 1: Putting citizens at the centre (eGovernment) of government administration reforms; • Commitment 2: A step further on the re-use of public administration documents;

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • Commitment 3: Increased access to Swedish aid information; • Commitment 4: Improved opportunities for dialogue and transparency in aid management and implementation; and • Commitment 5: Increased aid transparency at global level. <p>The Swedish Government Strategy for Collaborative Digital Services in Government Administration, "Putting the citizen at the centre", was launched in December 2012. This strategy describes how the Swedish Government plans to further strengthen the ability of government agencies to work together in delivering digital services. More common digital services in the daily lives of both citizens and businesses will be further simplified.</p> <p>The Swedish Digital Agenda was launched in October 2011 and is updated on a regular basis with last update in May 2015. There is a need for action in several areas in order to face challenges at global and national level. In this regard, four overarching strategic areas with numerous sub-areas have been established:</p> <ul style="list-style-type: none"> • Easy and safe to use, i.e. everyone can make use of the opportunities that are created; • Services that create benefit, i.e. attractive and easy-to-use digital services for different aspects of life; • The need for infrastructure, i.e. basic infrastructure with electronic communications that work well; and • The role of ICT in societal development, i.e. the use of the ICT in societal development in instances such as use of ICT for a more sustainable society, for global development, how research and innovation can be pursued, how people can exercise their freedom on the web, and modernised forms of democracy, participation and insight through increased transparency in the implementation of development assistance etc..
Switzerland	e-Government Strategy 2016	<p>As part of the e-Government Strategy of Switzerland, the following eight strategic projects and three strategic benefits have been introduced:</p> <ul style="list-style-type: none"> • Administrative portal for companies - one-stop shop to enable companies to make their

COUNTRY	STRATEGY	KEY FEATURES
		<p>dealings with the Swiss authorities completely electronically;</p> <ul style="list-style-type: none"> • Electronic identity (e-ID) Switzerland – development of the conditions for the establishment of an electronic identity is valid in Switzerland and abroad; • Swiss Federation of identities - setting up Swiss federation of identities (particularly in coordination with e-ID Switzerland) through which users can access various online services with single registration procedures; • Instrument validation of signatures - multiple use, in cantonal applications, of a signature validation instrument; • Implementation of e-Operations Switzerland – coordination of the joint financing, development and operation of cross-cutting services, basic infrastructures and other electronic services of the Swiss government; • E-Moving Switzerland - relocation announcement electronically (within Switzerland); • Electronic voting - the implementation of electronic voting; • e-VAT – development of the electronic transmission procedure counts of VAT.
Turkey	<p>2015 - 2019 National e-Government Strategy and Action Plan</p> <p>2015 – 2018 Information Society Strategy and Action Plan of Turkey</p>	<p>The aim of the e-government strategy and action plan is to cover all the needs of the all relevant stakeholders in a holistic way, based on the state of play of the country, global experiences, good practices and current trends. The Strategic Objectives are:</p> <ul style="list-style-type: none"> • Provision of activeness and sustainability of the e-government ecosystem. • Realisation of common systems for infrastructures and administrative processes. • Provision of e-transformation of public services. • Increase in usage, participation and transparency. <p>The title of the 8th axis of the 2015-2018 Information Society Strategy is User Centricity and Activeness in the Information Society Strategy in the area of the Information Society and eGovernment common area. The other axis are Information Technologies Sector, Broadband Infrastructure and Sectoral Competition, Qualified Human Resources and Employment, Effects of the</p>

COUNTRY	STRATEGY	KEY FEATURES
		ICT on the population, Information Security and User Reliability, Innovative Solutions aided with ICT, Internet Entrepreneurship and e-Commerce.
United Kingdom	<p>Government Digital Inclusion Strategy (December 2014)</p> <p>Government Digital Strategy (December 2013)</p> <p>National Information Infrastructure</p>	<p>This strategy sets out how government and partners from the public, private and voluntary sectors will increase digital inclusion. This means helping people become capable of using and benefiting from the internet. The actions in this strategy are about addressing the barriers that have stopped people going online until now and backing initiatives that will make things better, namely:</p> <ul style="list-style-type: none"> • Make digital inclusion part of wider government policy, programmes and digital services; • Establish a quality cross-government digital capability programme; • Give all civil servants the digital capabilities to use and improve government services; • Agree a common definition of digital skills and capabilities; • Boost Go ON UK's partnership programme across the country; • Improve and extend partnership working; • Create a shared language for digital inclusion; • Bring digital capability support into one place; • Deliver a digital inclusion programme to support SMEs and VCSEs; • Use data to measure performance and improve what we do. <p>The Government Digital Strategy sets out how government will redesign its digital services to make them so straightforward and convenient that all those who can use them prefer to do so. This strategy thus sets out how the government will become digital by default. The strategy will be implemented through the following actions:</p> <ul style="list-style-type: none"> • Improve departmental digital leadership; • Develop digital capability throughout the civil service; • Redesign transactional services to meet a new Digital by Default Service Standard; • Complete the transition to GOV.UK; • Increase the number of people who use digital services;

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • Provide consistent services for people who have rarely or never been online; • Broaden the range of those tendering to supply digital services including more small and medium sized enterprises; • Build common technology platforms for digital by default services; • Base service decisions on accurate and timely management information; • Improve the way that the government makes policy and communicates with people; • Collaborate with partners across public, private and voluntary sectors to help more people go online; • Help third party organisations create new services and better information access for their own users by opening up government data and transactions. <p>The National Information Infrastructure is a management framework for the most strategically important data held by government. It is composed of:</p> <ul style="list-style-type: none"> • a set of guiding principles; • a curated list of the most strategically important data; • a governance structure; • baseline quality criteria • and documents the following: <ul style="list-style-type: none"> • relevant legislation related to the data; • vocabularies and code lists; • licensing; • standards applicable to the data and data services; • guidance on use of the data; and • metadata.

4. Sub-National e-Government Strategies

Member States have also developed e-Government strategies at regional and local levels. Some pertinent examples are shown below.

COUNTRY	STRATEGY	KEY FEATURES
Belgium	<p>Wallonia: Plan for Administrative Simplification and e-Government (2010-2014)</p> <p>Flanders: Flemish e-Government strategy (2009-2014)</p> <p>Brussels-Capital Region e-Government Strategy</p>	<p>Wallonia</p> <p>The 'Plan for Administrative Simplification and e-Government (2010-2014)' aims to reduce administrative burden, firstly for the administration users and secondly for the administration itself. The Plan is organised around six objectives:</p> <ul style="list-style-type: none"> • simplification and improvement of regulations; • process simplification and harmonisation; • process dematerialisation; • electronic management of administrative documents; • simplification and dematerialisation of data collection and sharing; • improving information and communication to target groups. <p>22 projects were identified as important in reducing administrative burden, including environment permit simplification; building permit simplification; and procurement process harmonisation.</p> <p>In 2012, actions have focused on:</p> <ul style="list-style-type: none"> • The Trust Principle which allows users to establish a 'case' and add further requested information as the case is progressed; • The Crossroad Bank for Data Exchange which reduced significantly the number of data requests to users. <p>Flanders</p> <p>The Coordination Cell Flemish e-Government (CORVE) is responsible for determining the strategic aims and priorities for e-Government and co-ordinating implementation, including developing e-Government knowledge and skills; providing incentives; and creating a generic e-Government infrastructure.</p> <p>The home for online services in the Flanders' portal website. In recent years, priority has been given to improving back-office integration.</p> <p>A key aspect of the e-Government policy is the development of authentic sources of information. These are databases can be used to register and obtain data on businesses, people, addresses,</p>

COUNTRY	STRATEGY	KEY FEATURES
		<p>plots, buildings, maps, etc. An integrated registration approach is being built.</p> <p>In parallel, a SOA-based infrastructure, called MAGDA platform, was introduced in February 2006 to integrate data exchange services (web services, file transfer etc.).</p> <p>The Flemish e-Government strategy 2009-2014 aimed to develop integrated solutions that will simplify administration and increase efficiency. This included a renewed focus on the creation of authentic data sources, and specific focus on e-Participation, green ICT and open data. A key challenge was in will be extending the services provided by the MAGDA platform to all the local government organisations.</p> <p>Wallonia-Brussels Federation</p> <p>The Walloon Government and the Government of the Wallonia-Brussels Federation of Belgium have coordinated their strategies and objectives for simplifying administration through the 'Plan for Administrative Simplification and e-Government (2010-2014)', described previously. The simplification programme had a number of priority projects:</p> <ul style="list-style-type: none"> • SUBSIDE (Management of subsidies) • GED (Electronic document management) • CERBERE (Secure IT access management) • MIMESIS (Third party data management) • DATAWAREHOUSE (Storing and exploiting data) • CADASTRE (Non-profit sector jobs register). <p>Brussels-Capital Region</p> <p>In May 2014, the Brussels-Capital region unveiled its strategy, based on the following principles and actions:</p> <ul style="list-style-type: none"> • Brussels Smart City: make Brussels Digital Capital • Go as far as possible in the online administrative management • Hotspots in every public transport stop • Extend and simplify Irisbox, the regional one-stop-shop.
Denmark	Common Land Base for Public	<p><i>FOTdanmark</i> is a collaboration between central government and the municipalities to establish a shared cost-effective geographic foundation for public administration, known as FOT-data. The</p>

COUNTRY	STRATEGY	KEY FEATURES
	Administration (FOT)	<p>aim is to deliver efficiency through standardisation and reinforcement of collaboration across the state and local governments.</p> <p><i>FOTdanmark</i> establishes a unified topographic dataset that will be used as one of the fundamental elements in the NSDI for e-Government in Denmark. FOT-data is accessible by all Danish government bodies – state, regional and local.</p>
Estonia	Information society strategy for local governments 2008-2011	<p>The main aims of the Strategy are to:</p> <ul style="list-style-type: none"> • introduce electronic public administration to all local governments; • develop Internet-based tools for citizens' involvement in the organisation of local life; • ensure that all local government officials are aware of ICT possibilities; • develop the preconditions for the use of e-Services in all local governments; • establish organisations to coordinate information society development in counties.
Netherlands	Rotterdam's municipal open data website	This was launched in Aug 2012.
Spain	Avanza Local	<p>'<i>Avanza Local</i>', the "municipal arm" of the '<i>Avanza</i>' Plan, is intended to promote e-Government at local level. Areas covered include rollout of the 'Avanza Local Solutions Platform', development of technical solutions for local government, and creation of a good practice catalogue for municipal applications. Tools included in the '<i>Avanza Local Solutions Platform</i>' are:</p> <ul style="list-style-type: none"> • 'SIGEM', for managing municipalities' back offices • 'Localweb', for building and managing portals • 'LocalGIS', a powerful Geo-information system • 'Avanza Local Padrón', an integrated system to manage census and enrolment list for polls • 'e-Fácil' e-Invoicing. <p>In general, e-Procurement is integrated between platforms at national, regional or local levels.</p>
Sweden	Shared platform for e-Government	Local authorities have their own ' Platform for Co-operative Use ' which is used to exchange best practice and speed up the development of e-

COUNTRY	STRATEGY	KEY FEATURES
	applications in the municipalities	Government services. 30 municipalities have been collaborating on 5 pilot projects developed to identify, design and introduce a common systems architecture, technical platforms and basic functions for e-Services.
United Kingdom	<p>Strategies in the Devolved Administrations:</p> <p>Scotland's Digital Future: A Strategy for Scotland (2011)</p> <p>Digital Wales Strategy</p> <p>Northern Ireland Digital Economy Action Plan 2013-2014</p>	<p>Scotland</p> <p>Scotland's Digital Future Strategy outlines the steps that are required to ensure Scotland is well placed to take full advantage of all the economic, social and environmental opportunities offered by the digital age. Four themes were defined:</p> <ul style="list-style-type: none"> • Connectivity: Scotland's Digital Future: Infrastructure Action Plan outlines the government's commitment to a world-class, future-proofed infrastructure that will deliver digital connectivity across the whole of Scotland by 2020. So far, over £240 million of public sector funding has been committed to taking forward the Infrastructure Action plan. • Digital Public Services: Scotland's Digital Future: Delivery of Public Services Strategy provides a framework into which strategies developed by sectors align NHS Scotland; Local Government; central government, i.e. Scottish Government its agencies and no departmental bodies including the police and fire services; universities and colleges. A summary of progress on each of the Sectoral Strategies can be found here. • Digital Economy: the report Scotland's Digital Future - Supporting the Transition to a World-leading Digital Economy: Emerging Findings April 2013 was published on 7 May 2013. The report explores the public sector's approach to promoting Scotland's digital economy and provides initial outputs from the review of business support programmes. On 22 May 2013, additional £7 million funding was announced to take forward the recommendations in the report and complement the resources that are already in place within enterprise and skills agencies. • Participation: the digital participation strategy is laid out in a National Framework for Local Action. <p>Wales</p> <p>The Digital Wales Strategy is structured around five fundamental objectives:</p> <ul style="list-style-type: none"> • Inclusivity: Digital Wales will contribute to making Wales a more inclusive, sustainable

COUNTRY	STRATEGY	KEY FEATURES
		<p>and prosperous society. Making sure everyone can enjoy the benefits of technology is a key part of that.</p> <ul style="list-style-type: none"> • Skills: Information and communication technology (ICT) skills will be part of children's education, and technology will be used to improve teaching methods and learning. Beyond schools, the government will ensure that everyone in Wales can acquire the basic skills and confidence to get online and use digital technologies. The government will also help train people in more specialist skills for industry. • Economy: Digital Wales will support Welsh companies to network with research departments to create and commercialise new digital technologies. Digital Wales will help more Welsh companies to exploit these developments to innovate, grow and access new markets, especially in the creative industries, ICT and tourism sectors. • Public services: Digital Wales will make more public and government services digital so they are easier to access and become more efficient and convenient. Through effective use of technology, people will be able to better deliver these services, and maximise use of resources. • Infrastructure: To deliver all the benefits of digital technology, the government aims for everyone in Wales to access Next Generation Broadband (at least 30Mbps) by 2015. The government is actively working to improve mobile and wireless coverage across Wales too. <p>Northern Ireland</p> <p>The Northern Ireland (NI) Digital Economy Action Plan 2013-2014 identifies a number of challenges, as well as specific actions in order to tackle them. These are:</p> <ul style="list-style-type: none"> • Connected Digital Economy Catapult: Provide a world-class centre of expertise in the digital economy, to support the rapid commercialisation of cutting-edge technologies with the potential to have a global impact. • Systems – new digital media business systems: Developing visual effects capabilities and work processes to allow audiences to be reached across multiple platforms.

COUNTRY	STRATEGY	KEY FEATURES
		<ul style="list-style-type: none"> • Value – frictionless commerce: Making it easier for traders and their customers to establish a relationship online. • Value – valuing and pricing digital assets: Developing ways to agree value and price. • Data – uses of environmental data: Enabling the commercial exploitation of the rich UK collection of environmental data to provide practical decision support tools for industry - joint programme with resource efficiency team and shown in both areas. • Data – establishing clean data supply: Continuation of the LinkedGov project. • Data – digital technologies for health: Enabling companies to understand what impact they could have to help deliver more efficient and effective health systems and to connect with the providers. We may consider the following areas: early diagnosis, prevention and better treatments. Joint programme with health and shown in both areas. • Places & people – enterprise and employee information systems: Helping businesses to establish secure, resilient and reliable connections with their staff working remotely. • Places & people – location-based services: Helping businesses to engage with their customers in their 'here and now' context. • Places & people – local media systems: Developing a marketplace for information and services of local interest. • IC tomorrow: Developing innovation for small digital businesses through a programme of small business support contests. • Supporting and developing clusters: Developing innovation for small digital businesses through two Launchpad competitions: Creative North-West and Cyber SouthWest.

5. E-Government Practices

CATEGORY	DESCRIPTION
Surveys and benchmarking	Future Proofing e-Government for a Digital Single Market
Use of technology	Location aware solutions for healthcare, Cisco
Use of technology	Using technology to improve public services and democratic participation, European Parliamentary Research Service, 2015
Service and process design	The need for effective process management in the public sector
Service and process design	Collaborative Production in eGovernment - SMART 2010-0075, Tech4i2 Ltd, (2012)
Service and process design	Rethinking e-Government Services – User Centred Approaches, OECD
Capacity building	European Commission (2012). eGovernment Core Vocabularies. ISA Programme
Service and process design	Kotamraju, N. P. & van der Geest, T.M. (2012). The tension between user-centred design and e-Government services . Behaviour & Information Technology. 31:3, 261-273
Service and process design	Mayer-Schönberger, V. & Lazer, D. (2007). Governance and Information Technology: From Electronic Government to Information Government . Cambridge: MIT Press
Service and process design	OECD (2003). The E-Government Imperative . Paris: OECD Publishing.
Service and process design	OECD (2005). E-Government for better government . Paris: OECD Publishing.
Service and process design	OECD (2009). Rethinking e-Government services . Paris: OECD Publishing.
Service and process design	Van Velsen L., et al (2009). Requirements engineering for e-Government services: A citizen-centric approach and case study. Government Information Quarterly. 26: 477–486
Service and process design	Venkatesh, V., et al (2012). Designing e-Government services: Key service attributes and citizens' preference structures. Journal of Operations Management. 30: 116–133.
Service and process design	UK-French Data Taskforce. Data Driven Growth. Innovation, Infrastructure, Skills and Empowerment in the Digital Age.
Service and process design	Karen Layne, Jungwoo Lee. Developing fully functional e-government: a four stage model . Government Information Quarterly, Volume 18, Issue 2, Summer 2001.

Service and process design	<u>Digitising Public Services in Europe: Putting ambition into action – 9th e-Government Benchmark Measurement.</u>
Surveys and benchmarking	<u>e-Government Interoperability: A Review of Government Interoperability Frameworks in Selected Countries</u> , 2007.
Surveys and benchmarking	<u>e-Government Pilot Benchmarking Report on Open Government and Transparency</u> , 2011.
Service and process design	<u>Government Designed for New Times</u> , McKinsey.
Surveys and benchmarking	<u>United Nations e-Government Survey, 2014: Chapter 2 Progress in Service Delivery</u>
Surveys and benchmarking	<u>United Nations e-Government Survey 2016 – E-government in support of sustainable development</u>

6. E-Government and e-Participation Indices in Europe

European countries feature highly in the UN e-Government Survey 2016¹, with 6 of the top 10 countries being from the EU (DK, FI, FR, NL, SE, UK). The table below shows the e-Government and e-Participation Indices of Member States.

COUNTRY	e-Government Development Index (2016)
United Kingdom	92%
Finland	88%
Sweden	87%
Netherlands	87%
Denmark	85%
France	84%
Estonia	83%
Austria	82%
Germany	82%
Spain	81%
Belgium	79%
Slovenia	78%
Italy	78%
Lithuania	77%
Luxembourg	77%
Ireland	77%
AVERAGE	75%
Malta	74%
Poland	72%
Croatia	72%
Portugal	71%
Greece	69%
Latvia	68%
Hungary	67%
Czech Republic	64%
Bulgaria	64%
Cyprus	60%
Slovakia	59%
Romania	56%

COUNTRY	e-Participation Index (2016)
United Kingdom	100%
Netherlands	95%
Spain	93%
Finland	92%
Italy	92%
France	90%
Austria	88%
Poland	88%
Lithuania	83%
Denmark	81%
Estonia	81%
Croatia	78%
Malta	78%
Germany	76%
Sweden	76%
AVERAGE	74%
Slovenia	73%
Ireland	71%
Bulgaria	69%
Luxembourg	69%
Portugal	66%
Belgium	64%
Romania	63%
Greece	61%
Czech Republic	56%
Slovakia	54%
Latvia	53%
Cyprus	52%
Hungary	49%

¹ <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2016>

7. National Location Strategies

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
Canada	GeoConnections	<p>GeoConnections is the national initiative led by Natural Resources Canada that supports the integration and use of the Canadian Geospatial Data Infrastructure (CGDI)</p> <p>See also the following on the Canadian Geomatics Community Strategy:</p> <p>Furthering Canada's Geomatics Strategy: New Visions – New Direction – New Future</p> <p>Canadian Geomatics Community Strategy</p>
Croatia	NSDI Strategy	<p>The NSDI strategy includes the identification and analysis of all national and European policies that are dealing with the production, use and exchange of location information. It not only gives an overview of the relevant laws, regulations and policy declarations in each policy area, but also assesses the importance of location information in each area.</p>
Denmark	Location - A Gateway to e-Government	<p>The Strategy focuses on the following key areas:</p> <ul style="list-style-type: none"> • Development of common components • Reference data as a foundation for e-Government • Infrastructure model (5 principles) <p>Denmark has already taken steps to implement an NSDI, including making available registers for property, topographic mapping, and addresses.</p> <p>Common Public Administration Land Base (FOT)</p> <p><i>FOTdanmark</i> is a collaboration between central government and the municipalities to establish a shared cost-effective geographic foundation for public administration, known as FOT-data. The aim is to deliver efficiency through standardisation collaboration.</p> <p><i>FOTdanmark</i> establishes a unified topographic dataset that will be used as one of the fundamental elements in the NSDI for e-Government in Denmark. FOT-data is accessible by all Danish government bodies – state, regional and local. National coverage of FOT-data will be available by the end of 2012.</p> <p>The Danish Digital Elevation Model (DHM)</p> <p>DHM provides terrain and surface elevation data. It was established in 2007 and is continually being improved in terms of features, quality, currency and</p>

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<p>accessibility to meet requirements, e.g. climate change adaptation.</p> <p>Property and cadastre as a basis for registration</p> <p>The national cadastre ensures that property registration is based on fully digital and efficient administrative procedures. Private chartered surveyors are responsible for creating and amending land parcels.</p> <p>General access to geodata</p> <p>Geodata-Info provides access to national geodata sets and geodata services via a metadata catalogue, including INSPIRE data and services. It is developed using open source software in cooperation with other Nordic countries.</p> <p>"Digital Map Supply" (Kortforsyningen) is the distribution platform through which KMS makes its geospatial data available on the internet as network services. It covers the entire country with a number of geospatial reference datasets and is embedded into applications in many domains. It has been running since 2002 and in 2012 had around one billion hits.</p> <p>The Danish Nature and Environmental Portal (Danmarks Miljøportal) is the gateway to consistent and up-to-date environmental data and promotes the use of digital processes in environmental management.</p> <p>Geoforum Denmark (www.geoforum.dk) is the Danish Association for Geographic Information and is an NGO. The aim of Geoforum Denmark is to work nationally to promote the benefit of geographic information for the Danish society.</p>
Estonia	<p>Public Information Act of 2007</p> <p>Administration System of the State Information System (RIHA)</p>	<p>The creation and maintenance of Government databases are governed by the Public Information Act of 2007 which establishes an Administration System for State information systems (RIHA), where all the databases and information systems must be registered. RIHA includes metadata about public sector databases and additionally administers two supporting systems of State registers: the system of classifications and the address data system.</p> <p>Estonia's e-Government portal, 'eesti.ee', coordinates the information provided and the services offered by various State institutions. Access to relevant information services depends on whether the user is a citizen, an entrepreneur or a State official. As well as allowing users to update their information, send and receive emails and perform</p>

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		transactions, the portal provides access to other registry services (e.g. the Forest Registry) on more than 20 national databases.
Finland	Finnish National Spatial Data Strategy 2016	The vision of the Finnish National Spatial Data Strategy is to have fluent use of spatial data makes operations and decision-making more effective and produces new and varied services. Easily utilisable and reliable spatial data increases participation opportunities and improves safety and competitiveness.
Former Yugoslav Republic of Macedonia (FYROM)	National SDI Strategy	The NSDI Strategy includes the definition of key performance indicators which can be used for monitoring the use of location information.
Germany	Various initiatives	<p>The German Umbrella Organisation for Geoinformation - <i>Deutscher Dachverband für Geoinformation</i> (DDGI) is a lobbying body of institutional players and data providers, with members from the private sector and academia, which promotes private sector GI interests and stimulates the construction and the application of geo-information nationally and internationally. It works to optimise quality and content to improve the availability and usability of geo-data. It promotes synergy across the main stakeholders at federal and federal state level, and linkages to the European dimension via EUROGI (the European umbrella organization for Geographic Information).</p> <p>The Working Committee of the Surveying Authorities of the federal states of the Federal Republic of Germany - <i>Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland</i> (AdV) provides documentation and metadata about the availability, quality and pricing of reference data. ATKIS® (Authoritative Topographic-Cartographic Information System) brings together data from the 16 federal state surveying authorities and the BKG (<i>Bundesamt für Kartographie und Geodäsie</i>, the German Federal Agency for Cartography and Geodesy). Products include digital landscape models (DLM), digital terrain models (DGM), and the digital topographic map series 1: 25,000 to 1: 1,000,000.</p> <p>Germany's SDI standards (GDI-DE v2.0) are a subset of those in e-government (SAGA V5.0). However, SAGA is not legally binding for the German Länder. It is a federal standard and some states are not following it. There is a problem of</p>

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<p>data models, with some organisations having to serve both 'e-government data' and 'INSPIRE data'.</p> <p>Germany has gained experience with making INSPIRE data available as open data. Bridging the metadata is possible but not easy, and the transformation results in a loss of useful information. The INSPIRE models for thematic data are even more difficult to convert to the standard for XML in use by public administrations (XOEV).</p> <p>The German SDI Architecture concept is described in the document and summarised in the flyer.</p>
Greece	Operational Programme for the Information Society (2007)	<p>Greece launched the 'Operational Programme for the Information Society' (OPIS) to rollout broadband across all parts of the country and connect large numbers of public authorities at different levels.</p> <p>Greece's open government geospatial data portal 'geodata.gov.gr', launched in July 2010, is the first step towards practical implementation of free distribution of geospatial data to everyone without institutional and technical barriers.</p>
Italy	Cartographic Cooperating System National Geoportal	<p>The Cartographic Cooperating System (CCS) is the NSDI created in accordance with the INSPIRE Directive and the standards of DigitPA. CCS is based on the following principles:</p> <ul style="list-style-type: none"> • adoption of the INSPIRE Directive; • use of RNDT DigitPA metadata creation techniques; • use of Applicative Cooperation DigitPA techniques for metadata exchange; • use of standardised core reference geodata to support data sharing and visualisation; • use of OGC interoperability standards. <p>In addition to the standard implementation of the INSPIRE Directive there is a legal framework that includes:</p> <ul style="list-style-type: none"> • a national catalogue of spatial data, database of national interest • a committee for technical rules on GI • implementation of the National register of resident population; • implementation of the national register of addresses; • implementation of national platform of smart communities

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<p>The National Geoportal (NG) provides public access to a wide range of cartographic and related environmental information. Users can either browse the maps that are available or use the information in a more structured way using WMS, WFS and WCS services, which enable the data to be interoperable. The following datasets are available:</p> <ul style="list-style-type: none"> • Black and white and colour photography • IGM cartography • Digital landscape models • toponyms • Administrative boundaries • Protected areas • Soil description • Territorial plans • Sea bathymetric data • Coastal maps and erosion risk • Railways • Orthophoto dates • Geological data • CORINE land cover data <p>Users public administrators, schools, universities, scientific institutions, and environmental conservationists.</p>
Latvia	Geospatial Information Development Concept of Latvia	<p>This is the main policy document in the field of geodesy, cartography and geospatial information. The main focus is on coordination and planning of geodetic, cartographic and geospatial information and funding model of geospatial information reference data production. Specific geodetic and cartographic issues (for instance, the definition of a new vertical reference system) are covered as well. A draft of this Concept has been discussed with the relevant public government organisations and non-governmental organisations.</p> <p>The principles of e-government services (including geospatial services) are defined in the Information Society Development Guidelines (draft).</p>
Latvia	Joint Information System for Municipalities (JISM)	<p>The Joint Information System for Municipalities (JISM) supports functions such as population registration, real estate, and collection and storage of data from registry offices and social service providers. It offers data exchange with the Population Register, the Real Estate State Cadastre</p>

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		Information System, the State Address Register and the Vehicle and Drivers' State Register.
Lithuania	Law on Geodesy and Cartography of Lithuania Statute of the Spatial Information portal of Lithuania	<p>A common public spatial data policy is set by the Law on Geodesy and Cartography of Lithuania and by the Statute of the Spatial Information portal of Lithuania. SE "GIS-Centras" implements the project "Extension of services of Lithuanian Spatial Information Infrastructure implementing priority measures of INSPIRE directive" (No. VP2-3.1-IVPK-06-V-02-002), partly financed by EU structural funds. The Reference Base Cadastre is the state register of location information. The cadastre dataset is maintained at 1:10,000 and, from this, 1:50,000 and 1:250,000 products are derived.</p> <p>The main statements related to developing the NSDI are in the Law on Geodesy and Cartography. Short term strategic objectives related to development of reference spatial data / information are in the Annual strategy plans of the Ministry of Agriculture and National Land Service under the Ministry of Agriculture.</p> <p>The Ministry of Agriculture is in charge of coordination of the location information amongst state authorities and has established a "Public Council for an investigation on possibilities in improving legislations in the sphere of geodesy, real estate cadastre and preparation of land planning documents".</p> <p>The National Land Service under the Ministry of Agriculture maintains standard licence agreements. They are applicable for NLS datasets and also are commonly used by other authorities as templates. Model licence agreements are available in Lithuanian and English at www.geoportal.lt.</p>
Luxembourg	National Geoportal	
Malta	e-Government Services Directory	<p>The Malta e-Government Services Directory contains various location-related services:</p> <ul style="list-style-type: none"> • Visit Malta contains information on the Maltese Islands and includes an interactive map and webcams; • The Malta Environment and Planning Authority provides an online map server for the Maltese Islands; • Change of address for citizens and businesses; • Pharmacy locations and opening times.

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
Netherlands	GIDEON Geo Information Strategy (2008-2011)	<p>The GIDEON Geo-Information Strategy (2008-11) has seven implementation strategies:</p> <ul style="list-style-type: none"> • give geo-information a prominent place within Dutch e-Services; • encourage the use of the existing four key geo-registers, and set up two new ones; • embed INSPIRE into Dutch legislation and implement the technical infrastructure; • optimise supply by forming a government-wide geo-information facility; • encourage the use of geo-information in government policy and implementation; • add economic value to public sector geo-information; • encourage collaboration in knowledge sharing, innovation and education. <p>A National Geo-Register was established which has a metadata catalogue, and geographic search and view capabilities. INSPIRE is being implemented and available data themes include agriculture and livestock, biodiversity, climatology, meteorology, inland waters, and seas. The Geo-Register has been built using GeoNetwork open source software.</p> <p>PDOK = Publieke Dienstverlening op de Kaart (Public Services with Digital Maps) is an initiative in which five public sector organisations have set up a central facility for distribution of geo-datasets, enabling their use in different e-government portals and services. The partners are: Ministry of Infrastructure and the Environment, Ministry of Economic Affairs, Rijkswaterstaat, the Dutch Cadastre and Geonovum.</p> <p>A programme ('Better Government Services with Digital Maps') is being implemented to make geo-information available for broad use in an efficient, reliant and sustainable way. The Netherlands has an active e-Government Programme, with 25 key projects. Geo-information plays an important role. The following location-related key registers have been set up:</p> <ul style="list-style-type: none"> • Addresses and Buildings (BAG); • Topography (BRT); and • Cadastral Information (BRK). <p>Future planned location-related registers are:</p> <ul style="list-style-type: none"> • Netherlands Large Scale Basic Map (BGT), which will be based on the current Large Scale Standard Map of the Netherlands (GBKN) and will aim is to

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<p>use the same large scale topographic map across government; and</p> <ul style="list-style-type: none"> The Netherlands Geological Information Database (BRO), which will possibly include soil data. <p>These geo-registers are part of a system of 13 key registers that are planned.</p> <p>Digital Exchange in Planning Processes (DEPP)</p> <p>The Spatial Planning Act 2009 (WRO) introduced a new and improved spatial planning system and included provisions to make spatial plans available digitally through the 'Digital Exchange in Planning Processes' programme. The purpose of this new law is to combine, unify, align and modernise the many conflicting current regulations concerning the physical environment, covering areas such as environment, water, spatial planning, traffic, construction, nature, and monuments and historic buildings.</p> <p>A National Open Data Portal has been established which is separate from the National Geo-Register. The rationale for a separate portal is to maintain all spatial data in one place and because of the differences in metadata.</p> <p>A new GI-policy document (GIDEON 2) is a joint effort of businesses, knowledge institutions and government (at national, regional and local levels). The ensuing work programme will also be developed in cooperation with the same partners. A few sectors are targeted specifically. Together with (potential) users of location information, new location services will be explored, investigated and developed.</p> <p>The Netherlands Framework of Geo-standards - "Raamwerk van geo-standaarden" - was first published in 2007 and updated in 2010 and 2012. Using these standards, it is possible to build an SDI adapted to international and national developments. The latest version of the framework is consistent with INSPIRE, ISO/TC 211 and OGC and takes into account developments in e-Government. The standards take account of developments in sensors, 3D visualisation and conformity testing.</p>
Northern Ireland	Northern Ireland Geographic Information Strategy (2009-2019)	<p>The Northern Ireland Geographic Information Strategy (2009-2019) has the following key features:</p> <ul style="list-style-type: none"> Maximise the value that can be achieved from the use of GI by driving its uptake; GI can assist in key strategic areas; Need to demonstrate the business benefits;

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<ul style="list-style-type: none"> Importance of capacity building.
Poland	<p>Spatial Information Infrastructure Programme 2012-13</p> <p>Poland's Geoportal</p>	<p>Organisational and technological aspects are covered in Poland's INSPIRE activities and its Spatial Information Infrastructure Programme for 2012-13.</p> <p>Poland has implemented a geoportal. The current version is based on an interactive map viewer with tools to search and analyse spatial information. The following datasets have been implemented:</p> <ul style="list-style-type: none"> Cadastral data; General Geographic Database of Poland; Topographic Database; Orthophoto maps; Topographic raster map; Subject raster map; State Border Register; State Register of Geographical Names; Digital terrain model; Metadata sets and spatial data services. <p>The main goals of the new GEOPORTAL 2 project are to expand the infrastructure and make high quality, current and reliable data available to citizens, businesses and public administration. There will be functions to search, view, download and transform the data.</p>
Republic of Ireland	Digital land registration	<p>The Digital Mapping System (DMapS) project was set up to convert the Property Registration Agency's extensive paper maps and records into digital form, to support casework and provide a wide range of spatial information online to customers. Digital mapping services are available through the 'landdirect.ie' portal. The ISDE portal also publishes INSPIRE data and services.</p>
Republic of Ireland	e-Government Strategy (2012-2015)	<p>The following actions on digital location data were in the Irish Government's "Supporting Public Service Reform eGovernment Strategy 2012 – 2015":</p> <ul style="list-style-type: none"> Action 27 – Public bodies will evaluate the potential for exploiting digital mapping and GIS technologies in ways that are affordable, sustainable and of relevance to the customer bases of their services, taking into account the personal or commercial sensitivities of the data; Action 28 – Public bodies will identify data sets they hold that contain location based data and will make these details available to other public bodies where appropriate to reduce duplication

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<p>and to facilitate greater area-based targeting of public services.</p> <p>A Spatial Information Working Group is charged with the responsibility of implementing these actions.</p>
Romania	Romanian INSPIRE Geoportal	<p>The INIS Geoportal, developed on ESRI Geoportal Server Extension Technology, provides a gateway to relevant, up to date and quality geographic information. The aim is to improve decision making and operations at national level for activities which have an impact on the environment. The Geoportal will allow users to:</p> <ul style="list-style-type: none"> • Register as a user • Discover what data is available • View data or maps • Publish and expose their own geospatial data • Receive automatic notification of new geospatial data resources that meet user-specified criteria • Obtain data resources provided by other producers.
Slovakia	Act No. 3/2010 of law digest on National Infrastructure of Spatial Information	<p>Act No. 3/2010 of law digest on National Infrastructure of Spatial Information is the main legislation.</p> <p>A series of national location registers are in place or in development:</p> <ul style="list-style-type: none"> • Primary Database for GIS - the Ministry of Environment has carried out a feasibility study • Real Estate Cadastre • Survey Information File • Address Register • Spatial Information Register. <p>There is an active Coordination Council of National Spatial Data Infrastructure which has had a main focus on INSPIRE implementation (http://inspire.enviroportal.sk/koordinacia/rove-sk). Whilst some of the members acts in both bodies, there is no currently established cross eGovernment and GI community coordination body.</p>
Slovenia	Strategy on IT and electronic services development and connection of	<p>The Strategy on IT and Electronic Services development and Connection of Official records (SREP) also covers location information.</p> <p>Based on this strategy, the government prepared an electronic services development action plan for 2010-2015, within which is defined an "E-spatial"</p>

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
	official records (2009) Electronic Services Development Action Plan 2010-15 Mapping and e-Government portals	<p>programme. This programme includes projects to develop a spatial information system and establish a common infrastructure for spatial data.</p> <p>Two relevant portals contain location information:</p> <ul style="list-style-type: none"> • Portal of the Surveying and Mapping Authority (Cadastre); • A service supplied by the e-Government portal e-Uprava.
Sweden	Swedish Geodata Strategy 2009 Spatial Information Legislation	<p>The aim of the Swedish Geodata Strategy is to encourage increased co-operation within the geodata sector by providing increased and clearer information as well as guidance to producers and users. Key principles for the Geodata Strategy are that it should:</p> <ul style="list-style-type: none"> • contribute to the development of Swedish e-governance; • support the development of the private sector; and • facilitate adaptation to new pre-conditions. <p>It should be steered by consumer demands and be based on well-developed co-ordination between the different parties involved. The work is also one stage in the Swedish implementation of the INSPIRE Directive.</p> <p>The 10-year vision for the Strategy is that organisations that manage and use geodata should:</p> <ul style="list-style-type: none"> • Through the national geodata infrastructure generate increased benefits for society based on interagency co-operation and at the lowest possible cost; • Link together information resources in a network and make them available via uniformly designed services with descriptions of the information content; • Provide services to public administrations, private sector companies and Swedish citizens and satisfy demands at local, regional, national, European and global levels. <p>To realise the intentions of the strategy, eight work packages have been identified containing strategic goals, direction and prioritised activities:</p> <ul style="list-style-type: none"> • Co-operation in establishing the network infrastructure; • Information structure;

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<ul style="list-style-type: none"> • Technical infrastructure; • National metadata catalogue; • Geodetic reference systems; • Research, development and education; • Legal framework; • Financial and price models. <p>The Act (2010:1767) on Spatial Information and the Ordinance (2010:1770) on Spatial Information came into force on 1 January 2011.</p> <p>The Country Report of Sweden to UN-GGIM 2015 gives an overview of the Swedish national spatial data infrastructure (SDI), its organisation as well as a short discussion on how international initiatives are implemented at national level.</p>
Switzerland	Location Strategy	<p>The e-geo.ch committee is responsible for the development and implementation of the strategy. It involves all public administrations as well as all private institutions. The latter are integrated through the Swiss Organisation for Geographic Information.</p>
United Kingdom	UK Location Strategy UK Government Licensing Framework for Public Sector Information	<p>The objective of the UK Location Strategy (UKLS) is to maximise the value of geographic information to the public, government and business. The overall aim is to provide a consistent framework to assist national, regional and local initiatives and service delivery.</p> <p>The UKLS is applicable to all policy areas and incorporates the implementation of the EU INSPIRE Directive; it recognises however that more needs to be done to eliminate duplication, encourage re-use and build linkages across datasets.</p> <p>To exploit the full value of the UK's location information requires a programme of strategic actions which ensure that:</p> <ul style="list-style-type: none"> • people are aware of what data is available, and avoid duplicating it; • common reference data is used so as to have a common perception of location; • location-related information is shared through a common infrastructure of standards, technology and business relationships; • geographic professionals and professional groups who use location information or support its use, have the appropriate skills;

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<ul style="list-style-type: none"> • strong leadership and governance drive through change, including the implementation of this Strategy and the implementation of INSPIRE. <p>The UKLS introduced the concept of core reference geographies, a small number of key datasets that form common information frameworks which are defined, endorsed and used by all data holders in both the public and private sector.</p> <p>Local variants of the UK Location Strategy exist in Northern Ireland, Scotland and Wales, reflecting local agendas and priorities:</p> <ul style="list-style-type: none"> • One Scotland – One Geography: a Geographic Information Strategy for Scotland (2008) • Northern Ireland Geographic Information Strategy (2009-2019) • Location Wales: Geographic Information for Wales Opportunities and Challenges (2009) <p>The UKLS is implemented by the UK Location Programme, which has successfully delivered to the initial INSPIRE deadlines. Among the steps completed are:</p> <ul style="list-style-type: none"> • Introduction of INSPIRE Regulations to transpose the Directive into UK legislation; • Setting up and operation of the UK Location Council and other governance bodies; • Launch and maintenance of the UK Location website; • Publication of a conceptual design and roadmap; • Stakeholder engagement and outreach programmes; • Creation of geospatial capabilities within the national open data portal (data.gov.uk); • Publication of metadata discovery and view services for Annex I and II themes; • Integration of data from the devolved administrations and thematic communities; • Promotion and use of the Open Government Data Licence. <p>Over 1000 location datasets have been published using INSPIRE standard services.</p> <p>The UK Government Licensing Framework (UKGLF) provides a policy and legal overview of the arrangements for licensing the use and re-use of public sector information both in central government and the wider public sector. It sets out best practice and standardises licensing principles. The UKGLF</p>

COUNTRY	STRATEGY	KEY FEATURES AND ACTIONS
		<p>sets out the Government's guiding principles for licensing the use of public sector information. These are:</p> <ul style="list-style-type: none"> • simplicity of expression – the terms should be expressed in such a way that everyone can understand them easily; • non-exclusivity – so that access can be provided to a range of users on fair and equal terms; • fairness of terms; • non-discrimination – terms are extended fairly to all for similar uses; • the need for acknowledgment and attribution; and • the need for transparency by publishing standard licence terms.

8. INSPIRE

CATEGORY	REFERENCE
Implementation evaluation	INSPIRE Evaluation: Summary of findings for EU Member States
Implementation evaluation	INSPIRE Implementation Report 2016
Implementation evaluation	INSPIRE: Monitoring and Reporting / Country Reports and Web Links
Implementation evaluation	Mid-term evaluation report on INSPIRE implementation
Implementation evaluation	Staff Working Document on the REFIT evaluation of the INSPIRE Directive (SWD(2016)273)
Implementation evaluation	The EC legal framework for the availability of public sector spatial data: an examination of the criteria for applying the directive on access to environmental information, the PSI directive and the INSPIRE directive
Knowledge base	INSPIRE Forum
Knowledge base	INSPIRE in Practice
Knowledge base	INSPIRE Registry - providing access to a number of centrally managed INSPIRE registers
Legislation	COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata
Legislation	COMMISSION REGULATION (EU) No 1253/2013 of 21 October 2013 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC as regards interoperability of spatial data sets and services
Legislation	Commission Regulation (EU) No 1311/2014 of 10 December 2014 amending Regulation (EC) No 976/2009 as regards the definition of an INSPIRE metadata element
Legislation	Commission Regulation (EU) No 1312/2014 of 10 December 2014 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data services
Legislation	Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)
Legislation	INSPIRE: COMMISSION REGULATION No 102/2011 amending Regulation 1089/2010 as regards interoperability of spatial data sets and services

CATEGORY	REFERENCE
Legislation	INSPIRE: COMMISSION REGULATION No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
Legislation	INSPIRE: Commission Regulation No 976/2009 amending Directive 2007/2/EC of the European Parliament and of the Council as regards download services and transformation services
Other – events	Powered By INSPIRE
Other – national implementation	INSPIRE in Denmark and its effect on the Danish e-Government
Other – projects	eENVplus - eEnvironmental services for advanced applications within INSPIRE
Related standards	CEN/TC 287 European GI Standard
Related standards	Open Geospatial Consortium (OGC) Standards
Scientific articles	Building INSPIRE: The Spatial Data Infrastructure for Europe, Max Craglia
Scientific articles	INSPIRE: An Innovative Approach to the Development of Spatial Data Infrastructures in Europe, Craglia and Annoni
Technical guidance	INSPIRE: A Conceptual Model for Developing Interoperability Specifications in Spatial Data Infrastructures
Technical guidance	Central INSPIRE registry and INSPIRE register Federation – Terms of Reference for the control body and submitting organisations
Technical guidance	INSPIRE: Generic Conceptual Model for the INSPIRE Data Specifications
Technical guidance	Guidelines for the use of Observations & Measurements and Sensor Web Enablement-related standards in INSPIRE
Technical guidance	INSPIRE E Data Specification Extensions
Technical guidance	INSPIRE Data Specifications Overview and Data Models
Technical guidance	Recommendations for the 2016 Member State Report
Technical guidance	Technical Guidance for implementing download services using the OGC Sensor Observation Service and ISO 19143 Filter Encoding
Technical guidance	Technical Guidance for INSPIRE Spatial Data Services and services allowing spatial data services to be invoked

CATEGORY	REFERENCE
Technical guidance	<u>Technical Guidance for INSPIRE Spatial Data Services and services allowing spatial data services to be invoked</u>
Technical guidance	<u>Technical Guidance for the implementation of INSPIRE dataset and service metadata based on ISO/TS 19139:2007</u>
Technical guidance	<u>INSPIRE: Technical Guidance for the implementation of INSPIRE Discovery Services</u>
Technical guidance	<u>INSPIRE: Technical Guidance for the Implementation of INSPIRE Download Services</u>
Technical guidance	<u>Technical Guidance for the implementation of INSPIRE Download Services using Web Coverage Services (WCS)</u>
Technical guidance	<u>INSPIRE: Technical Guidance for the implementation of INSPIRE View Services</u>
Technical guidance	<u>INSPIRE: Technical Guidance for the INSPIRE Schema Transformation Network Service</u>

9. Policy References in the INSPIRE Data Specifications

The following policies are referenced in the INSPIRE data specifications.

POLICY	NUMBER OF REFERENCES
Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the 'Water Framework Directive')	9
Habitats Directive (EEC/92/43)	5
Directive 2008/56/EC of 17 June 2008 establishing a framework for Community action in the field of marine environmental policy (the 'Marine Strategy Framework Directive')	3
Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (CAFÉ)	3
Noise Directive 2002/49/EC	3
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste	3
Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control	3
Regulation (EC) No 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register	3
Regulation (EC) No 1059/2003 for NUTS	3
The NACE rev. 2 classification [Regulation 1893/2006/EC]	3
European Commission, 2006 Assessment, monitoring and reporting under Article 17 of the habitats Directive: explanatory notes & guidelines. Final draft 5, October 2006. European Commission, Brussels	2
[Standard Data Form] European Commission, 1995. Natura2000 Standard Data Form. EUR 15 Version, European Commission, Brussels	2
Soil Directive (proposed)	2
Council Directive 91/271/EEC of 21 May 1991 concerning urban wastewater treatment	2
Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks (the 'Floods Directive')	2
Seveso/Seveso II Directive 96/82/EC-A COUNCIL DIRECTIVE 96/82/EC on the control of major-accident hazards involving dangerous substances Amended by Regulation (EC) No 1882/2003 of the European Parliament and of the Council of 29 September 2003 and by	2

POLICY	NUMBER OF REFERENCES
Directive 2003/105/EC of the European Parliament and of the Council of 16 December 2003	
Industrial emissions directive 2010/75/EU	2
Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources.	2
DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.	2
Directive 1999/31/EC of the European Parliament and of the Council of 26 April 1999 on the landfill and waste.	2
Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC - Statement by the European Parliament, the Council and the Commission	2
Regulation (EC) No 763/2008 of the European Parliament and of the Council on population and housing censuses as regards the technical specifications of the topics and of their breakdowns	2
REGULATION (EC) No. 105/2007 Amending the Annexes to Regulation 1059/2007 (NUTS2006)	2
Decision No 884/2004/EC of the European Parliament and of the Council of 29 April 2004 amending Decision No 1692/96/EC on Community guidelines for the development of the trans-European transport network	2
Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC) (EIA Directive)	2
Bern Convention – Convention on the Conservation of European Wildlife and Natural Habitats	2
Convention for the Protection of the Marine Environment of the North-East Atlantic Sea (OSPAR)	2
Convention on the Protection of the Marine Environment of the Baltic Sea Area (HELCOM)	2
Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention)	2
Commission Decision of 18 December 1996 concerning a site information format for proposed Natura 2000 sites (97/266/EC) – [sets out Natura 2000 activity type codes]	1

POLICY	NUMBER OF REFERENCES
[Interpretation Manual for European Habitats] Habitats Committee. (2007). Interpretation manual of European union habitats version EUR 27 European Commission, DG XI Brussels.	1
Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive')	1
EU Soil Thematic Strategy (COM(2006)231 final)	1
CAP. Council regulation (EC) No 1782/2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy.	1
GMO policies	1
Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption (the Drinking Water Directive – DWD)	1
Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC (the Bathing Water Directive – BWD)	1
Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy	1
Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration	1
Council Decision of 13 September 2010 concerning the conclusion, on behalf of the European Union, of the Protocol on Integrated Coastal Zone Management in the Mediterranean to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean	1
Directive 2007/60/EC on the assessment and management of flood risks	1
SEC(2010) 1626 final 5.01.2011 Risk Assessment and Mapping Guidelines for Disaster Management.	1
Directive 86/278/EC of the European Parliament and of the Council. Sewage Sludge Directive	1
Raw Materials Initiative: [Communication 2008/699/EC] The raw materials initiative - Meeting our critical needs for growth and jobs in Europe {SEC(2008) 2741}. Communication COM(2008) 699	1

POLICY	NUMBER OF REFERENCES
DIRECTIVE 2001/77/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market (repealed by the Renewable Energy Directive 2009/28/EC).	1
Energy Statistics Regulation EC 1099/2008	1
Energy Performance of Buildings Directive 2002/91/EC	1
Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste	1
Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control – IPPC Directive (repealed by the Directive on Industrial Emissions 2010/75/EU)	1
Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste	1
Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators	1
Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics	1
Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment – WEEE (repealed by Directive 2012/19/EU on waste electrical and electronic equipment – WEEE)	1
2000/532/EC: Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (notified under document number C(2000) 1147) (Text with EEA relevance)	1
Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste (repealed by the Directive on Industrial Emissions 2010/75/EU)	1
Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicles	1
Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community	1
European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste	1

POLICY	NUMBER OF REFERENCES
COMMISSION DECISION of 22 March 2005 establishing the formats relating to the database system pursuant to Directive 94/62/EC of the European Parliament and of the Council on packaging and packaging waste (notified under document number C(2005) 854) (2005/270/EC).	1
Council Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel	1
Emerald Network (Biogeographical regions from the Bern Convention)	1
EUNIS (European Nature Information System)	1
COMMISSION REGULATION (EU) No 519/2010 of 16 June 2010 adopting the programme of the statistical data and of the metadata for population and housing censuses provided for by Regulation (EC) No 763/2008	1
REGULATION (EC) No 177/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 February 2008 establishing a common framework for business registers for statistical purposes and repealing Council Regulation (EEC) No 2186/93	1
REGULATION (EC) No 295/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 March 2008 concerning structural business statistics	1
COUNCIL REGULATION (EC) No 577/98 of 9 March 1998 on the organisation of a labour force sample survey in the Community	1
REGULATION (EC) No 862/2007 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 July 2007 on Community statistics on migration and international protection and repealing Council Regulation (EEC) No 311/76 on the compilation of statistics on foreign workers	1
COMMISSION REGULATION (EC) No 1201/2009 of 30 November 2009 implementing Regulation (EC) No 763/2008 as regards the technical specifications of the topics and of their breakdowns	1
REGULATION (EC) No 1177/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 June 2003 concerning Community statistics on income and living conditions (EU-SILC)	1
REGULATION (EU) No 1151/2010 of 08 December 2010 implementing Regulation (EC) No 763/2008, as regards the modalities and structure of the quality reports and the technical format for data transmission	1
Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Towards a better targeting of the aid to farmers in areas with natural handicaps {SEC(2009) 449}	1

POLICY	NUMBER OF REFERENCES
COMMISSION REGULATION (EC) No 1242/2008 of 8 December 2008 establishing a Community typology for agricultural holdings.	1
REGULATION (EC) No 451/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2008 establishing a new statistical classification of products by activity (CPA) and repealing Council	1
REGULATION (EC) No 882/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.	1
REGULATION (EC) No 852/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2004 on the hygiene of foodstuffs.	1
REGULATION (EC) No 178/2002 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.	1
COUNCIL DIRECTIVE 90/426/EEC of 26 June 1990 on animal health conditions governing the movement and import from third countries of equidae.	1
Council Directive 92/35/EEC of 29 April 1992 laying down control rules and measures to combat African horse sickness	1
Council Directive 2000/75/EC of 20 November 2000 laying down specific provisions for the control and eradication of bluetongue	1
COUNCIL DIRECTIVE of 15 October 1990 on animal health conditions governing intra-Community trade in, and imports from third countries of, poultry and hatching eggs (90/539/EEC).	1
REGULATION (EC) No 853/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2004 laying down specific hygiene rules for food of animal origin.	1
Council Directive 82/894/EEC of 21 December 1982 on the notification of animal diseases within the Community	1
COUNCIL DIRECTIVE of 26 June 1964 on animal health problems affecting intra-Community trade in bovine animals and swine (64/432/EEC).	1
Council Directive 2005/94/EC of 20 December 2005 on Community measures for the control of avian influenza and repealing Directive 92/40/EEC	1
Council Directive 90/425/EEC of 26 June 1990 concerning veterinary and zootechnical checks applicable in intra- Community trade in certain	1

POLICY	NUMBER OF REFERENCES
live animals and products with a view to the completion of the internal market.	
Commission Regulation (EC) No 690/2008 of 4 July 2008 recognising protected zones exposed to particular plant health risks in the Community	1
COUNCIL DIRECTIVE 2006/88/EC of 24 October 2006 on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals	1
COMMISSION DECISION of 18 December 2009 adopting a multiannual Community programme for the collection, management and use of data in the fisheries sector for the period 2011-2013	1
Directive 2006/44/EC of the European Parliament and of the Council of 6 September 2006 on the quality of fresh waters needing protection or improvement in order to support fish life	1
Directive 2006/113/EC of the European Parliament and of the Council of 12 December 2006 on the quality required of shellfish waters	1
Implementing Council Directive 2006/88/EC as regards an Internet-based information page to make information on aquaculture production businesses and authorised processing establishments available by electronic means (notified under document number C(2008) 1656) (Text with EEA relevance) (2008/392/EC).	1
Commission Decision of 7 September 2001 on guidance for the implementation of Regulation (EC) No 761/2001 of the European Parliament and of the Council allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) (notified under document number C(2001) 2504) (Text with EEA relevance.)	1
Regulation L228, 09/09/1996 Community Guidelines for the development of the trans-European transport network.	1
European Commission STAFF WORKING DOCUMENT Accompanying document to the COMMUNICATION FROM THE COMMISSION Trans-European Networks : Toward and integrated approach {COM(2007) 135 final} Brussels, 21.3.2007 SEC(2007) 374	1
Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons	1
Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (SEA Directive)	1
International Statistical Classification of Diseases and Related Health Problems (ICD) Value	1

POLICY	NUMBER OF REFERENCES
"Causes of Death" Value	1
Hierarchical INSPIRE Land Use Classification System (HILUCS)	1
EUROCODES: EN 1990 - EN 1999, providing a common approach for the design of buildings and other civil engineering works and construction products	1
Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar (Iran), 2 February 1971	1
Convention Concerning the Protection of the World Cultural and Natural Heritage	1
Convention on the Protection of the Black Sea Against Pollution (Bucharest Convention)	1

10. Other Location Information Practices

CATEGORY	DESCRIPTION
Frameworks	United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). Discussion Paper: Developing a Legal and Policy Framework for Geoinformation Management (2013)
Frameworks	United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). Report on legal and policy frameworks for geospatial information for the sixth session of UN-GGIM (2016)
General	Do Place Based Policies Matter , Federal Bank of San Francisco.
General	Place Based Policies , Oxford University School for Business Taxation.
General	The Case for Evidence Based Policy , Policy Horizons Canada.
Service and process design	CTIA. Best Practices and Guidelines for Location-Based Services , March 2010.
Service and process design	Universal Postal Union. Addressing the World - an Address for Everyone : White Paper.
Surveys and benchmarking	Abbas Rajabifard and David Coleman. Spatially Enabling Government, Industry and Citizens: Research and Development Perspectives . GSDI Association Press, 2012.
Surveys and benchmarking	Consultingwhere. UK Location Market Survey 2012: An Assessment of the Current Size and Future Direction of the UK Market for Location Information Products and Services .
Surveys and benchmarking	Rajabifard et al. Spatially Enabling Society, Research, Trends and Critical Assessment . Chapter 5, Towards an Assessment Framework for Spatially Enabled Government.
Surveys and benchmarking	United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). Country reports .
Surveys and benchmarking	United Nations Initiative on Global Geospatial Information Management (UN-GGIM): Future Trends in Geospatial Information Management: The Five to Ten Year Vision , July 2013.

11. Open Data Initiatives

Many Member States have established open data initiatives through policies, legislation and portals to provide access to data. These initiatives are designed to facilitate transparency, enable interoperability through reuse and exchange of data and provide wider and low cost access to public information meeting users' needs without duplication of effort. Prominent examples are shown below.

COUNTRY	INITIATIVE	NOTES
Austria	Vienna government open data website National open data portal	
Belgium	Open-data website	The Belgian government has set up an open data website.
Denmark	Good Basic Data For Everyone Conditions for Use of Open Public Geographic Data Modelling Basic Data	<p>As part of the e-Government Strategy, in October 2012, the Danish Government published "Good Basic Data for Everyone", defining how it will make public data more accessible to support growth and efficiency. Actions include:</p> <ul style="list-style-type: none"> • financing and making available mapping, cadastral business register data to complement the address and property data that is already freely available; • rationalising and enhancing geographic datasets to improve data quality; • improving technical standardisation; and • introducing a cross-institutional basic data committee. <p>Open public geographic data is made available free of charge, so long as copyright is protected. Free data includes cadastral data, topographic / technical data, and the digital terrain model.</p> <p>In October 2013, the Danish Geodata Agency published the first version of the methods and guidelines to be used when modelling basic data. These guidelines are grounded on INSPIRE.</p>
Estonia	Open-data website Open data gateway Estonian Information Society Strategy, 2014-2020	The Estonian Information Society Strategy 2020 focuses on the use of ICT and smart solutions for the creation of an enabling environment assurance. The higher goal is thus to support the competitiveness of the economy through ICT, human well-being and an increase in the efficiency of state government.

COUNTRY	INITIATIVE	NOTES
EU	EU Open Data Portal	A single access point for information from all EU institutions and bodies. Datasets are free to use or redistribute for non-commercial or commercial purposes. There is an open licence but exceptions are allowed.
EU	Open Data Strategy for Europe	The Commission's work in the area of open data is focussing on generating value through re-use of a specific type of data – public sector information, sometimes also referred to as government data. That is all the information that public bodies produce, collect or pay for.
Finland	Open data portal	
France	Open data website	Launched in December 2011
France	Open Access law	This new law grants researchers the right to provide open access to publicly funded research. It also grants permission to reuse published research data resulting from publicly funded research.
Germany	Common data policy Government data portal Data Licence Germany Federal spatial data and services licensing	Federally owned spatial data and services are basically available free of charge for commercial and non-commercial use.
Greece	Open government geospatial data portal	Launched in July 2010
Hungary	Open data portal	PSI is regulated by Act LXIII of 2012 on the re-use of public sector information and data, originating from the PSI Directive. Each institution can apply its own licence, e.g. for business registration there are templates for unique contracts, redistributors' contracts and accession contracts for public institutions
International	Foss4G	FOSS4G is the annual global event of the Open Source Geospatial Foundation (OSGeo). The FOSS4G conference focuses on Free and Open Source Software for Geospatial. In addition to high level technical talks, four key domain topics

COUNTRY	INITIATIVE	NOTES
		practically connect the software with communities from neighbouring domains.
International	G8 Open Data Charter	The Open Data Charter sets out 5 strategic principles that all G8 members will act on. These include an expectation that all government data will be published openly by default, alongside principles to increase the quality, quantity and re-use of the data that is released. G8 members have also identified 14 high-value areas – from education to transport, and from health to crime and justice – from which they will release data. These will help unlock the economic potential of open data, support innovation and provide greater accountability.
International	Open Access to Research Data in Nordic Countries	This report assesses the status of open access research data in Northern-European countries.
International	Open Data Showroom	The Open Data Showroom contains links to several projects related to open data.
International	Open Knowledge International	Open Knowledge International is a worldwide non-profit network of people passionate about openness, using advocacy, technology and training to unlock information and enable people to work with it to create and share knowledge. Their activities focus on supporting international networks of experts, campaigning for release of data and information, supporting the use of open data and offering commercial technology and consulting services.
International	United Nations Department for Economic and Social Affairs – Open Government Data for Citizen Engagement in Managing Development – Guidance Toolkit	This Toolkit focuses on how to open government data and how this can be useful for citizen engagement by providing an easy-to-use reference that introduces policy guidelines and best practice recommendations developed by the international community to enable decision-makers to design, implement, evaluate and sustain OGD initiatives for citizen engagement in their national, regional, local and cultural context.
Italy	Open data website	<p>The Open Data website was launched in October 2011.</p> <p>Italy has an integrated data policy for spatial and non-spatial data, including:</p> <ul style="list-style-type: none"> • The Italian I-Codice dell'Amministrazione Digitale (D. L.vo n. 82/2005) • Agenda Digitale Italiana (D.L. n. 179/2012 e L. n. 221/2012)

COUNTRY	INITIATIVE	NOTES
		<ul style="list-style-type: none"> • other national law • National Agenda and guidelines for the enhancement of public information • Guidelines for the drafting of agreements for the access/usability/availability of data of Public Administration • Technical rules for the identification of critical databases • Italian Open Data Licence (1.0 compliant with CC BY SA and 2.0 compliant with CC BY)
Latvia	Geospatial Information Law (English) Geotelpiskās informācijas likums (Latvian) Open data portal Licensing model: Geotelpisko datu kopas izmantošanas noteikumu obligātais saturs un izmantošanas atļaujas saņemšanas kārtība	Depending to the use of a geospatial data set there are 3 types of licences: 1) for end-users, 2) for services providers, 3) for data distributors.
Netherlands	National: Open data website 'Overheid.nl' – the main administration portal Local: Rotterdam municipal open data website	The national open data website was launched in October 2011. 'Overheid.nl' serves as the central access point to all information about government organisations and has a catalogue of open data. The portal provides information about people and businesses by theme, life events and location. It offers consolidated legislation, as well as access to local decisions and a catalogue of services so that citizens can easily find an appropriate organisation. At a local level, Rotterdam's municipal open data website was launched in August 2012. The open data policy is still in development, following the new PSI directive. This directive will be implemented the following legislation: Wet openbaarheid van bestuur. There is a standard licensing model for location information based on Creative Commons (CC0): 'Geo Gedeeld'. The Netherlands is working

COUNTRY	INITIATIVE	NOTES
		<p>towards a new overarching licensing model for all government data.</p> <p>For more information: Planning for socioeconomic impact open data as a policy instrument in the Netherlands and elsewhere.</p>
Norway	Open data website	Launched in April 2010.
Portugal	Dados.gov	
Republic of Ireland	Republic of Ireland Open Government Partnership	<p>The Irish eGovernment strategy has specific actions relating to Open Data. Also, the Government has signed up to the Open Government Partnership – arising from this the Government Reform division in Department Public Expenditure and Reform is working on an action plan which is expected to contain concrete commitments relating to open data as well as transparency, accountability and citizen participation.</p>
Slovakia	Open data portal Open Government Partnership Data policy - Act No. 305/2013 of law digest on eGovernment	<p>The first monitoring period of the Slovak Open Government Partnership closed in mid-2013 and a draft evaluation report was made available for public consultation. One of the three pillars of this initiative relates to Open Information, where some identified open data has a location dimension.</p> <p>Act No. 305/2013 of law digest on eGovernment contains the government's data policy. See also Act No. 275/2006 of law digest on public administration information systems.</p> <p>A standard data licensing model has been created: Metodický pokyn pre štandardné náležitosti opisu predmetu zákazky, štandardné podmienky účasti vo verejnom obstarávaní a optimálne zmluvné podmienky v súvislosti s projektmi v oblasti informačnokomunikačných technológií (verzia 1.51)</p>
Slovenia	NIO – National Interoperability Framework Portal Core registers	<p>The NIO Portal is a website dedicated to publishing interoperability solutions and products of the public sector.</p> <p>It connects a catalogue of interoperability solutions with best practices for re-using its content.</p> <p>In Slovenia a number of basic (core) registers have a long history within e-government activities. One of these core register is an address register, part of register of spatial units, which is fully integrated with a citizens' register,</p>

COUNTRY	INITIATIVE	NOTES
		a register of companies and a register of taxpayers. All these core registers are publicly available and connected between each other with unified identifiers.
Spain	Open data website Data licensing	Spain's Open Data website was launched in October 2011. There is a wide variety of licenses regarding geodata, e.g. the IGN (NMA) licence . There is also a standard National Government licence for the reuse of PSI that could be applied by default. This licence is in the annex of RD 1495/2011 .
Switzerland	Open data Portal Data policy and legislation Open Data Strategy 2014-2018	All legal texts (various regulations and ordinances) concerning Geoinformation in Switzerland at a Federal level can be found on the following sites: <ul style="list-style-type: none"> • http://www.admin.ch/ch/d/sr/51.html#510.6 (German) • http://www.admin.ch/ch/f/rs/51.html#510.6 (French) • http://www.admin.ch/ch/i/rs/51.html#510.6 (Italian) The OGD Strategy has three aims: <ul style="list-style-type: none"> • Release of official data: making data suitable for OGD available to the public in machine-readable and open formats to enhance reuse; • Coordinated publication and provision of official data: helping central infrastructure (OGD portal) via support of better localisation and availability of data for free reuse by public; and • Establishing an open-data culture: The Confederation will support the use of data through free, uniform and understandable terms of use and through additional information on the individual data sets. It will also pursue a continuous dialogue with the public.
United Kingdom	National: data.gov.uk UK Government Service Design Manual Open Data Institute Local	Data.gov.uk, the UK government open data website, was launched in September 2009. It contains over 8,500 datasets, around 1000 of which are location data. The Service Design Manual helps service managers and digital delivery teams across government make services so good that people prefer to use them. It's made up of two things:

COUNTRY	INITIATIVE	NOTES
	London Data Store	<ul style="list-style-type: none"> • The Digital by Default Service Standard, a list of criteria that services and teams must meet before they go live; • The Government Service Design Manual, a pool of guidance and advice about how to design and build digital services from teams across government. <p>The Open Data Institute has been established with £10m from the UK government and £0.75m from the Omidyar Network to be used on a matched-funding basis to unlock supply, promote learning and nurture new ideas and innovations in the use of government data.</p> <p>At a local level, the London Data Store provides free access to data from the Greater London Authority.</p> <p>The UK has set up an Open Government Licensing Framework to make it easier for users to license government data. Access to location data fits within this framework.</p>

12. Open Source Software Initiatives

Many Member State ICT strategies have promoted the use of open source software. A list of particular initiatives is shown below.

COUNTRY	INITIATIVE	NOTES
Austria	eGOVLABS	eGOVLABS is an open source repository that offers software modules for electronic identification, eSignature, eSignature validation, and delivery.
Denmark	Geodata-info.dk	Geodata-info.dk provides access to national geodata sets and geodata services via a metadata catalogue, including INSPIRE data and services. It is developed using open source software in cooperation with other Nordic countries.
Estonia	Rural Municipality Portal	The Rural Municipality Portal has been set up to increase transparency of local governments and expand citizen participation. It is based on an open source content management tool, a standard website structure for local governments, tools for site administration and interfaces with public registers.
Europe	Big Data Europe	Open Land Use Map is a composite map that is intended to create detailed land-use maps of various regions based on certain pan-European datasets such as CORINE Land cover, UrbanAtlas enriched by available regional data.
Finland	http://www.oskari.org	<p>Paikkatietoikkuna is implemented by applying and extending open source code libraries and the results of the development are available as open source code under EUPL or MIT licenses.</p> <p>The portal is running on the Liferay platform and the map window is built mainly with the OpenLayers and jQuery JavaScript libraries.</p> <p>The source code can be downloaded at the OSKARI platform, which aims to offer easy-to-use, browser-based tools to access and re-use information from various data sources, including the Inspire Spatial Data Infrastructure (SDI) and the Finnish National SDI.</p>
Finland	Paikkatietoikkuna.fi	The national geodata portal is based on open source software. It has a map window to browse multiple map levels, produced by different organisations, on

COUNTRY	INITIATIVE	NOTES
		different themes, such as terrain, soil, land use, and traffic networks.
France	Adullact.Net platform	'Admisource', an open source software repository and collaborative software development platform was launched in June 2005. In July 2008, Admisource was merged with Adullact.Net, the platform of the Association of Developers and Users of Free Software for Administrations and Regional / Local Governments.
Greece	Opengov.gr	'Opengov.gr' is an open source software portal supporting citizens' needs for information and enabling participation in shaping decisions. It is designed to serve the principles of transparency, deliberation, collaboration and accountability and includes three initiatives: Open calls for recruitment of public officials; Electronic deliberation; and Labs OpenGov.
International	HALE	HALE is an open source software to explore complex data structures, transform data and create and use Open Standards data
Spain	e-Signature	In October 2010, the e-Signature application used by many public administrations was released as open source. As a result, an open source community for its development has been created within the Technology Transfer Centre (CTI).
Sweden	Strategy on the work of Public Agencies in the field of e-Government (2009-2014)	One of the goals of the 'Strategy on the work of the Public Agencies in the field of eGovernment' is that Public Agencies should select open standards and always consider using open source software.
The Netherlands	The Netherlands in Open Connection (2008-2012)	'The Netherlands Open in Connection' aimed to make open source and open standard software mandatory for all levels of Government. As a result, all ministries now support OpenDocument Format (ODF) for reading, writing, sharing, publishing and receiving documents.
United Kingdom	Government ICT Strategy (2011-2013)	One of the key actions of the UK Government ICT strategy is to create the conditions for the use of open source software in public administration.

13. Case Studies – Applications

The table below is a non-exhaustive list of case studies in the use of location data and services, covering applications in multiple policy areas and at different levels of government.

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Addresses	Belgium	Core Location Pilot – Interconnecting Belgian Address Data	National	G2B G2C G2G	This pilot investigated the possibility to unlock address data for use by public administrations, businesses and citizens in Belgium, linking with the implementation of INSPIRE.
Addresses	Belgium - Flanders	Central Reference Address Database (CRAB)	Regional	G2G G2B G2C	Standardised exchange format for address data in Flanders
Addresses	Denmark	Address data system	National	G2G G2B G2C	
Addresses	Estonia	Estonian Land Board: State Address Data System	National	G2G G2B G2C	Web based services for address search, address normalisation and geocoding
Addresses	FYROM - Skopje	Addressing system	City	G2G G2B G2C	Fully integrated address system for Skopje with map viewer.
Addresses	Sweden	Business address register	National	G2C	
Addresses	Sweden	Citizen address register	National	G2C	
Agriculture	Estonia	Estonian Agricultural Registers and Information Board: registers of farm animals and agricultural land parcels and	National	G2B	Farmers are able to declare their animals and fields for subsidies using an interactive web map based system

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
		agricultural support			
Agriculture	Germany - Bavaria	Agricultural subsidies	Regional	G2B	Online application for multiple agricultural subsidies
Agriculture	Hungary	MEPAR	National	G2B	Land parcel identification system
Agriculture	Spain	SIGPAC	National	G2B	SIGPAC is the on line GIS for European agricultural policies, implemented by FEAGA (European Fund of Agricultural Guarantees) from the Spanish Ministry of Environment (MAGRAMA)
Agriculture & Spatial planning	Belgium	A 'generic GIS for e-Government' in Flanders	National	G2C	The 'Agriculture e-portal' allows farmers and agriculturists to consult their data, but also to fill in and submit online forms
Agriculture & Spatial planning	Sweden	Application for agriculture subsidies	National	G2B	
Business development	Belgium, Germany and the Netherlands	'The Locator'	Cross-border, regional	G2B	A four-language portal for the Euregio Meuse-Rhine enabling users to find information about available plots on business parks, existing companies on those business parks, available commercial real estate and information about the Euregio and settlement conditions
Business registration	Czech Republic	Registration of new companies	National	G2B	
Business registration	Sweden	Registration of new companies Online lookup of companies	National	G2B	

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Citizen engagement	Latvia	Stakeholde.rs	Local	G2C	Presents information on a municipality map, citizen improvement ideas online, crowd sourced location based suggestions
Cultural heritage	Cyprus	Ancient monuments and movable antiquities	National	G2C	
Cultural heritage	Latvia	Cultural heritage information	National	G2G G2C	Latvian National Digital Library Letonica project, which brings together information relevant to cultural and historical values
Cultural heritage	Portugal	iGeo Património app	National	G2C	The iGEO Património app allows users to explore the cultural heritage sites of Portugal such as buildings, infrastructures and green areas. iGEO Património uses INSPIRE data to geolocalise Portuguese protected sites while leveraging on the data collected by the IHRU.
Economic policy	Spain	Tobacco Management App	National	G2B	According to the Spanish law all tobacco points of sale provide themselves of tobacco from one of the three closest official tobacco delivery establishments. For a permit request for a Tobacco Sales Point, the 'App Tobacco Management' application determines the spatial location of the 3 tobacconists nearest the sales point.
Economics	Belgium - Flanders	VKBO GeoGUI	Regional	G2G G2B G2C	Economic map of Flanders used by public servants, citizens and businesses

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Education	Slovakia	School map search	Local	G2C	Aims to help with search for quality education possibilities
Emergency management	Germany	Radiological emergency response in Germany	National	G2C	In case of emergency, the 'Integrated Measuring and Information System (IMIS) for the Monitoring of Environmental Radioactivity', provides the information necessary to give recommendations and take appropriate countermeasures based on measurements, forecasts and spatial analysis.
Emergency management	Italy	National landslide warning system	National	G2C	The system daily provides spatially distributed forecasts for the possible occurrence of rainfall-induced landslides in Italy. The main output consists of critical rainfall levels, which are determined from rainfall measurements and rainfall forecasts.
Emergency management	Netherlands	Digital Accessibility Map	National	G2C	In the Netherlands, the Digital Accessibility Map was developed to provide firemen up-to-date navigation description and all relevant information about the emergency location.
Emergency management	Poland	Universal Map Module (UMM)	National	G2C	UMM is a geospatial module enhancing the Command Support System of Polish emergency services. It is applicable for all the emergency services and can be integrated in their Command Support Systems in order to deliver "spatial functionality" as a support to their work processes.

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Energy	Belgium - Ghent	'Heat photo'	Local	G2C	Geoportal that shows citizens the heat loss through the roof of their house
Energy	Netherlands	CERISE-SG	National	G2G G2B G2C	A project to align the information architectures of utility companies and related architectures, to support future smart-grids and other applications. Joins together the energy sector, e-government and geo worlds.
Energy	Republic of Ireland	SEAI's Wind Atlas	National	G2G G2B G2C	Provides information on wind speeds, electricity transmission and distribution networks at national and county levels. SEAI hopes to bring the atlas to a wider audience, helping to inform the public about the nature and extent of Ireland's wind energy resources.
Energy / Transport	Spain	Petrol Stations Geoportal	National	G2C	Provides citizens with information about petrol prices and opening hours
Environment	Belgium	Air quality monitoring and reporting	National	G2C	The Belgian Interregional Environment Agency (IRCEL-CELINE) is responsible for reporting on air quality issues to citizens and policy makers and for transmitting national data concerning air quality to the European level and other international organisations.
Environment	Denmark	Subsidy applications for planting forests	National	G2B	

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Environment	Denmark, Germany, Netherlands	INSPIRE compliant marine environment e-reporting	Multi-national	G2G	The aim of the INSPIRE marine pilot is to help improve the understanding of INSPIRE in the management of Marine Strategy Framework Directive (MSFD)-related spatial information, and to provide guidance and tools that facilitate the mentioned obligations.
Environment	EU	Copernicus Geoland 2	Multi-national	G2G G2C	The project geoland2 (2009-2013) aimed to prepare the operational application capabilities of GMES Land Services, consisting of Core Mapping Services (CMS) and Core Information Services (CIS), to support decision makers with the most accurate and up to date information available on the status of the environment
Environment	France - Lille	Land use change map	Local	G2G	Comparison in soil occupation between 1993 and 2006
Environment	Latvia	Nature data management system	National	G2G G2C	Special conservation areas, micro reserves, habitats, species habitat
Environment	Latvia	Rural Support Service	National	G2G G2B G2C	Locate places and information by cadastre number, print individual maps, splitting of large reference parcels, use of cadastral data in property rights clearance and project evaluation
Environment	Latvia	Waste collection sites	National	G2B G2C	
Environment	Lithuania	Ecological problem reporting	National	G2C	

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Environment	Malta	Environment / Land Use Applications - MEPA eAPPS	National	G2G G2B G2C	Electronic processing of environment permit and land use applications
Environment	Republic of Ireland and Northern Ireland	Tellus Border Project	Cross-border	G2GG2B	An EU INTERREG IVA-funded regional mapping project collecting geo-environmental data on soils, water and rocks across six border counties (Donegal, Sligo, Leitrim, Cavan, Monaghan and Louth) and continuing the analysis of existing data in Northern Ireland
Environment	Slovakia	Environmental Reporting	National	G2B	Portal to support issuing of environment related statements in various domains (local planning, environmental loads, wastewater treatment plants, etc.) including related metadata for official documents
Environment	Slovakia	Information System of Contaminated Sites	National	G2C	In Slovakia, an 'Information System of Contaminated Sites' was developed to support and document all processes related to the management of contaminated sites and to provide access to all official information on different measures in the field of contaminated sites.
Environment	Slovakia	TrashOut - Monitoring Illegal Dumping	Local	G2G G2B G2C	An initiative triggered by NGOs/SMEs and adopted/supported by certain governmental authorities
Environment	Slovakia and Hungary	Slovak – Hungarian commission for nature and environment protection	Cross-border	G2C	

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Environment	United Kingdom	Bathing Water Quality	National	G2C	Bathing water quality data explorer using linked data
Environment	United Kingdom	Conservation Volunteers	National	B2C	Community hub linking volunteers to local environmental projects and volunteer groups
Environment	United Kingdom	MySoil App	National	G2C	My Soil is a smartphone application that brings together soil property data and information from a broad range of research centres and data providers was developed by the British Geological Survey in partnership with the Centre for Ecology and Hydrology.
Environment / Agriculture	United Kingdom	What's in Your Backyard for farmers	National	G2BG2C	The application provides interactive maps for finding information about the environment. A particular application was developed for farmers, to inform them about water bodies in their environment that might be affected by agricultural pollutants.
Environment / Emergency	Czech Republic	Flood portal of Liberec Region	Regional	G2G G2C	Flood protection management
Environment / Emergency	Poland	Geomelio portal - Flood protection	National	G2G G2B G2C	Provides view services, sharing and analysis of water data and water management facilities for land parcels. Mainly used for flood protection investment planning.
Environment / Emergency	United Kingdom - Calderdale	Vulnerable People	Local	G2G G2C	Locates vulnerable people during flood emergencies
Flood management	Germany	ZÜRS Geo system	National	G2BG2C	ZÜRS is a zoning system for floods, backwater and heavy rains. Individual insurance companies can make use of this online

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					risk assessment tool to assess the risk of natural hazards (especially flooding) for any requested area risks and determine a risk-related premium
Geographic names	Global	What3words	Global	B2B, B2C	What3words is a combination of three words that identify in a unique way every 3x3 meters square on the surface of our planet. It aims at providing an accurate addressing method, especially for areas that are poorly addressed. This would improve customer experience and deliver business efficiencies.
Health	Netherlands	Atlas Leefomgeving	National	G2G	Interactive maps related to the socio-physical environment
Health	Netherlands	'De Witte Kaart'	Regional	G2G	Information on healthcare providers
Health / Emergency	United Kingdom	Ambulance response times	National	G2G	Used to calculate optimal positioning of ambulance locations
Health / Safety	Latvia	Work accidents map	National	G2B G2C	State Labour Inspectorate registered accidents at work
Incident Management	Latvia	Citizens events map	National	G2C	Describes different events - crime, fire, accidents – (information from official state registries updated daily)
Incident Management	Netherlands	Accessibility map for firemen	National	G2G	Details the building(s) where a fire occurs (coordinates, building type, residence, purpose of use, etc.). The system is based on the Addresses and Buildings (BAG) register The BAG data model is compliant with INSPIRE specifications

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					and extends the INSPIRE minimum requirements.
Incident Management	Sweden	Registration of natural hazard events	National	G2G G2B G2C	
Industrial Zones	Belgium - Flanders	MAGDA-GEO	Regional	G2G G2B	Interactive map of industrial zones and companies
Land administration	Cyprus	Land and property registration	National	G2B G2C	
Land administration	Czech Republic	Registry of Territorial Identification, Addresses and Real Estate	National	G2C G2B	Czech Office for Surveying, Mapping and Cadastre (www.cuzk.cz). Access to data: http://vdp.cuzk.cz/ Access to real property data: http://nahliznidokn.cuzk.cz/
Land administration	Denmark	Property information system	National	G2CG2B	
Land administration	Denmark	Real estate property rights	National	G2BG2C	Registration of real estate property rights
Land administration	Estonia	Estonian Land Board State Land Cadastre	National	G2BG2C	The land registration process has location information fully integrated from surveying to registering in the Cadastral Database. Customers are able to track the registration process on a web map. View services are open and free to everybody.
Land administration	EU	EULIS	European	G2B	Online service to access MS land registers
Land administration	FYROM	Land information system	National	G2G G2B G2C	From the Ministry of agriculture, forest and water management

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Land administration	FYROM	Real estate information system	National	G2G G2B G2C	An online service for performing cadastral parcel searches by ID-number. The user can see on a map the relevant parcel(s), border(s), size, and location relative to roads, rivers etc., and access information from the ID-number about the property, including ownership details.
Land administration	Hungary	Property registration* Real estate information system			* Related to constructions permissions https://www.etdr.gov.hu/ and http://www.e-epites.hu/etdr
Land administration	Latvia	State Land Service data distribution portal	National	G2BG2 C	Gives on-line access to textual and spatial data for all territory in Latvia found in the National Real Estate Cadastre information system and in the National Address Register.
Land administration	Lithuania	www.zis.lt	National	G2GG2 B	Contains detailed information about land use and land condition
Land administration	Republic of Ireland	e-Notary	National	G2B	Software for compilation of property deeds (and basis for digital archive)
Land administration	Republic of Ireland	LandDirect.ie	National	G2BG2 C	Property title registration and searching. Users can conduct on-line searches, undertake names index searches, search and locate property using the digital map viewer, use an index of addresses to view a map, review pending transactions, and track progress of cases
Land administration	Slovakia	Cadastral Portal	National	G2GG2 BG2C	

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
Land administration	Slovenia	Surveying and Mapping Authority Data Distribution System e-Prostor - Real Estate data portal	National	G2G G2B G2C	The Surveying and Mapping Authority provides electronic access to geodetic data through an online data distribution system as well as issuing geodetic data certificates at Surveying and Mapping Authority counters and all administrative units that issue certificates from geodetic databases. The “ e-prostor ” portal provides public access to all real estate data in Slovenia.
Land administration	Spain	Cadastral services	National	G2G G2B G2C	Cadastrre activities and real-state tax payment have defined processes in which GI is strongly integrated. The Cadastre is almost fully converted into a digital database, with geographic and non-geographic data published onto the web by means of standard services.
Land taxes	Estonia	Land Tax Information System (MAKIS)	National	G2G G2B G2C	Enables local governments to gather information from state registers (population, addresses, cadastre, titles) to calculate land tax
Mapping	Latvia	Online geospatial map	National	G2G G2B G2C	Online geospatial reference data (map) browser with following functions: search by name and for point coordinates, tools for measuring, displaying GPS routes
Mapping	Republic of Ireland and Northern Ireland	OSi Map Genie	Cross-border	G2GG2B	Allows a user to connect directly from a desktop to both OSi and Land and Property Services Northern Ireland (LPS)

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					geodatabases via an All-Ireland Web Service, giving access to map data at a variety of scales.
Mapping / Education	Republic of Ireland	ScoilNet Maps, digital mapping for Irish schools	National	G2GG2 C	A web mapping website for Irish schools, containing OS Ireland maps for Ireland as well as a range of world maps. There are also additional links to maps featuring curriculum- relevant GIS data.
Marine	Republic of Ireland	INFOMAR Marine Institute Data Portal	National	G2GG2 B	The INFOMAR programme is a joint venture between the Geological Survey of Ireland and the Marine Institute and is the successor to the Irish National Seabed Survey . Covering some 125,000 km ² of Irelands most productive and commercially valuable inshore waters, INFOMAR will produce integrated mapping products covering the physical, chemical and biological features of the seabed.
Mining	Croatia	Mining GIS	National	G2G G2B G2C	Register of sites
Mining	Spain	Mining Cadastre	National	G2GG2 B	Register of geographical location, ownership and validity of mining rights
Planning	Denmark	Planning Portal	National	G2BG2 C	
Planning	Netherlands	Digital Exchange Platform for Spatial Plans	National	G2GG2 BG2C	From 2003-2010, the Netherlands implemented a digitised environment for spatial planning and developed appropriate open standards, known as RO standards. Under a new Spatial Planning Act and

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					associated regulation, municipalities, provinces and national administrations have been obliged since 1 January 2010 to digitise their spatial plans and make them available as Open Data, applying the RO standards.
Planning	Republic of Ireland	MyPlan.ie	National	G2G G2B G2C	Contains information about plans and other information relevant to planning decision-making (census, heritage sites, patterns of housing development etc.)
Planning	Sweden – Goteborg	Application to explore available commercial sites	Regional	G2B	
Planning	United Kingdom - Scotland	e-Planning	Regional	G2G G2B G2C	Website for submitting planning applications or appeals
Post Codes	Hungary	Post code search	National	G2BG2C	
Remote sensing	Hungary	GNSS service centre - ground based augmentation system	National	G2GG2B	
Safety	Latvia	Local Government Civil Protection Plan	Local	G2G	Plan with maps of districts or cities, with information on dangerous objects/areas
Safety	Netherlands	Public order and safety	National	G2G	Some key georegisters are used in support of public order and safety, e.g. BAG (addresses and buildings) and BRT (small scale topography). In the future, BGT (large scale topography) and, to a lesser extent, BRO

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					(subsurface data) will be used.
Safety	Norway	FiksGataMi	Local	G2C	Enables citizens to report faults and problems in their local communities
Safety	United Kingdom - Barnet	Streetpatrol	Local	G2G	GPS-system to locate, identify and photograph antisocial behaviour
Spatial planning	Italy – Piedmont	MUDE digital system for building permits	Regional	G2BG2C	With the aim of streamlining administrative procedures related to building permits, different public authorities in the Piedmont region in Italy started with the development of MUDE Piedmont, a unified digital system for building permits.
Spatial planning	Netherlands	Digital exchange platform for spatial plans	National	G2BG2C	As part of the initiative 'Digital Exchange of Spatial Processes' (popularly abbreviated as DURP), a digitized environment for spatial planning was created to facilitate the sharing of spatial plans.
Statistics	Poland	Location enabled census	National	G2C	In Poland, the Agricultural Census of 2010 and the Housing Census of 2011 were the first censuses that were completely carried out electronically, without use of paper. Enumerators were equipped with hand-held devices with a mobile application for the execution of the census process. The application contained a map module with orthoimagery and a digital map that assisted the enumerator in locating respondents.

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Tourism	Netherlands , Germany	e-RigG	Cross-border	G2C	Digital hiking map that can be uploaded to a PDA or mobile phone
Tourism	Slovakia	Hikeplanner	National	G2C	
Transport	Belgium	MOBIB card	National	G2C	Multi-modal journey planner
Transport	Czech Republic	IDOS – Cross-border journey planner for citizens	National	G2C	IDOS is a multimodal public transport planner of the Czech Republic integrating international, national, regional and urban public transport connections including bus, rail and air.
Transport	Estonia	Multimodal journey planner	National	G2C	Includes real time rail service information
Transport	Finland - Helsinki	Public transport journey planner	Local	G2C	Shows requested routes covering all modes of transport
Transport	Hungary	HU-GO	National	G2BG2C	Electronic toll system
Transport	Hungary	Hungarian Railways (MÁV) – map based train information	National	G2C	
Transport	Norway, Sweden	Intelligent Transport Systems (ITS)	Multi-national	G2B	The aim of the EULF Transportation Pilot is to promote the use of INSPIRE (European Directive setting the Infrastructure for Spatial Information in Europe) within the transport domain, by focusing on the electronic exchange of road safety data among public road authorities and private sector ITS map providers, at a cross-border level, based on authoritative

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					and seamless data compliant with INSPIRE.
Transport	Sweden	Multi-modal trip planner	National	G2C	
Transport	United Kingdom – Great Britain	Traveline	National	G2C	Traveline is an all Great Britain multi-modal travel planning service, which uses route timetables and real time departures for journey planning; an Open Data provider.
Utilities	Belgium - Flanders	Cables and conduits (KLIP)	Regional	G2GG2B	Information on cables and conduits to assist in excavation works
Utility management, road works	Netherlands	KLIC	National	G2BG2C	In 2010 The Netherlands introduced the digital information system KLIC to optimize the digital information-exchange between excavators and cable and pipe operators. Before starting excavation works, an excavator needs to submit an application request to KLIC. Network operators deliver the digital information about their cables and pipelines through KLIC to the Cadastre, which provides the information from all network operators to the excavator.
Various	Belgium - Flanders	Large Scale Reference Database	Regional	G2G G2B G2C	Used by municipalities to register plans and permissions, manage their heritage, green areas, street furniture, and provide the citizens with information and by utility companies to register conduits.
Various	Belgium, Germany and the	‘LoG-IN’ to the local economic knowledge base	Multi-national	G2BG2C	The LoG-IN project aimed to turn local authorities into key players in the local economy through the development of a

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
	United Kingdom				Generic Information Infrastructure. This infrastructure allowed them to manage and publish their - location - data and to build their own web applications. One of the first applications that was built with support of this Generic Information Infrastructure was an online overview of all companies in a certain region.
Various	Czech Republic	Base Register of Territorial Identification, Addresses and Real Estates (RUIAN)	National	G2BG2C	As one of the four Base Registers in the Czech Republic, the Base Register of Territorial Identification, Addresses and Real Estates (RUIAN) provides up-to-date core location data on administrative units, buildings, addresses, streets and public spaces, geographic names and election districts, as open data. In addition, RUIAN contains information on various characteristics of real estates, buildings and addresses
Various	EU	Citadel on the Move	European	G2G G2B G2C	Strategies, templates and tools for mobile open data applications
Various	EU	Open cities applications showcase	Various	G2C	It includes many applications involving location information.
Various	Germany	UN-GGIM User Case Studies - Germany	National	G2G G2B G2C	Examples include: Integrated Air Quality with Satellite Observations Radiological Emergency Response Risk assessment in the insurance business

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					Food Emergency Information System Management of animal disease outbreaks
Various	Germany - Netherlands	X-Border GDI ronduit	Multi-national	G2G	This programme involved several projects: <ul style="list-style-type: none"> • available industrial and/or commercial sites (Limburg region); • deployment of fire brigades and ambulances (Overijssel / Gelderland region); • flood risk management (Overijssel / Gelderland region). See presentation .
Various	Multinational - EU and neighbours	Danube Strategy Reference Data and Services Infrastructure (DRDSI) Project	European	G2G G2B G2C	Reference data and infrastructure to support Danube Region Strategy
Various	Netherlands	GIDEON	National	G2BG2C	GIDEON ran from 2008 to 2001, with the aim to foster the supply and use of geo-information, contributing to the implementation of INSPIRE and promoting cooperation in the fields of knowledge, innovation and education
Various	Netherlands	NORA	National	G2BG2C	NORA is the Dutch cross-government reference architecture.
Various	Republic of Ireland and Northern Ireland	All Island Research Observatory (AIRO)	Cross-border	G2G G2B G2C	A research unit in the National University of Ireland, which has produced an interactive spatial data website with all-island spatial datasets and specialist tools to aid their analysis and which undertakes academic and

POLICY AREA	LOCATION	APPLICATION	LEVEL	INTER FACES	DESCRIPTION
					applied mapping research. The intended audience of this site are planners, policy makers, researchers and those interested in understanding the dynamics shaping the island of Ireland.
Various	Spain – Navarra	SITNA	Regional	G2BG2 C	The Government of Navarre started with the implementation of a government-wide Territorial Information System of Navarre (SITNA), in order to coordinate and integrate all information from different departments.
Various	United Kingdom	Designing URI Sets for Location	National	G2BG2 C	A report from the Public Sector Information Domain of the CTO Council’s cross Government Enterprise Architecture, and the UK Location Council
Various	United Kingdom - Barrow	Barrow Borough Council Web Mapping Service	Local	G2C	Interactive mapping application with over 60 data layers, using INSPIRE services and open source software
Water	Cyprus	Water network information system	National	G2CG2 B	
Wiki	Netherlands	Geostandards Wiki	National	G2C	

14. Benefits Studies

FOCUS	TITLE / LINK	KEY POINTS
	An Analysis of Benefits from Use of Geographic Information Systems by King County Washington	This study is a return on investment (ROI) study of the development and use of geographic information systems (GIS) within King County, Washington. The study concludes that the use of GIS by the County had a net benefit of approximately \$180 million for the year 2010.
	Assessing the Value of Ordnance Survey OpenData (OS OpenData™) to the Economy of Great Britain	OS OpenData is a portfolio of 11 digital datasets of Great Britain produced by OS. These were made available for free use and re-use by all, including commercially, from 1 April 2010. This study summarises the findings from research undertaken to evaluate the economic effects and benefits of Ordnance Survey (OS) OpenData, and to inform on any future developments relating to open data from OS.
	Benefits of Open Availability of Landsat Data	The US Landsat satellite programme was launched in the 1970s. A free data policy was initiated on 1 October 2009. A daily average of 53 scenes was sold in the best sales year prior to this date. By June 2013, an average of 5700 scenes were being delivered daily using the web.
	Bramley, C., A review of the socio-economic impact of geographical indications: considerations for the developing world	
	Contribution to the Extended Impact Assessment for INSPIRE, 2003	Benefits of INSPIRE 7-10 times higher than the costs
	Cost Benefit Analysis of Address and Street Data for Local Authorities and Emergency Services in England and Wales	The purpose of the research study is to provide a cost/benefit evaluation of the impact of address and street data that GeoPlace collates from local authorities across England and Wales. The research outlines the benefits afforded to local authorities in a number of areas including; reduced data duplication and integration, improved tax revenues, channel shift and route optimisation in waste management.

FOCUS	TITLE / LINK	KEY POINTS
	Costs and Benefits of Implementing the INSPIRE Directive Workshop, 2012	
	Dutch INSPIRE benefits study	Highlights potential cost savings, more effective public policy making, increased collaboration and coordination, and improved quality of processes
	eGovernment Economics Project: Economic Model, 2006 eGovernment Economics Project: Measurement Framework, 2006	<p>This Economic Study looks at the impact of ICT in the Public Sector (PS) on the Public Sector itself and on society. It concludes that</p> <p>eGovernment programmes lead to improved public sector labour productivity and, as a consequence, contribute to a number of intermediate results (better services, cost savings, etc.), and to GDP growth, both in the public sector and knock-on growth in the private sector. The study contains a series of policy recommendations on the back of the model and a supporting Measurement Framework with a set of indicators.</p>
	Estimating Benefits of Spatial Data Infrastructures: A Case Study on e-Cadastres, 2012	e-Cadastre savings of €231bn p.a. compared with non-digital solutions
	EUROGEOSS: Guidelines for Assessing the Value of Information and the Added value of a Geo-Project, 2009	
	Finnish INSPIRE benefits study	Highlights more effective public policy making, increased collaboration and coordination, and improved quality of government processes
	GeoConnections geospatial return on investment case study: Hectares BC	This study is one in a series of geospatial Return on Investment (ROI) case studies based on the GITA ROI methodology. It focuses on Hectares BC, a web-accessible geospatial analytical tool developed as a collaborative project by federal and provincial government agencies and non-government organizations.

FOCUS	TITLE / LINK	KEY POINTS
		The Hectares BC study shows strong benefits due to a broad user base. There is significant potential for further benefits if use was expanded to transform the current business processes associated with resource development allocation, environmental assessment and First Nation referral. Expanding use to other sectors such as health and social sciences also warrants investigation. A modest level of applications enhancement and growth of the user base could yield dramatic increases in ROI, as demonstrated in alternate scenarios of this analysis.
	INSPIRE Benefits: Guide for Data Publishers, UK 2014	Summarises the benefits of INSPIRE, gives some practical guidance for data publishers on justification of publishing INSPIRE data, and contains a case study on the release of Land Registry INSPIRE data as open data, where anticipated benefits of £100m p.a. could be expected to offset the £5m p.a. loss of revenue by Land Registry. The Land Registry case study draws on a business case published by the UK Open Data User Group (ODUG), which identifies potential benefits of releasing this data, including creation of jobs by companies developing new products, speeding up property searches, and rationalising local authority property portfolios.
	INSPIRE Cost benefits Analysis (2009) and its 2016 update	
	INSPIRE in Danish e-Government, 2012	
	Managing Performance - International Comparisons, Bouckaert and Halligan (2008)	In the approach defined by Bouckaert and Halligan, three levels of benefits can be differentiated: 1) individual organisation, 2) a policy process/practice, and 3) a consolidation nationally across government.
	Model for Assessing the GIS Maturity of an Organisation, Finland 2011	
	OECD Working Paper on "Open Government Data:	Highlights the main principles, concepts and criteria framing open government

FOCUS	TITLE / LINK	KEY POINTS
	Towards Empirical Analysis of Open Government Data Initiatives"	data initiatives, the opportunities that OGD and data analytics may offer policy makers and the challenges in implementation. The paper suggests a methodological framework to assess the extent and value of OGD initiatives in OECD countries.
	Report of International Workshop on SDI Cost Benefit / Return on Investment, 2006	
	Socio Economic Benefits from the Use of Earth Observation, JRC 2011	
	Socio-Economic Benefits from the Use of Earth Observation – Report from the International Workshop held at Joint Research Centre, Ispra 11-13 July 2011	<p>As final recommendations from the workshop, priority should be given to:</p> <ul style="list-style-type: none"> • the development of an accepted scientific paradigm and of a General Economic Framework to measure EO costs and benefits; • the establishment of a community of practice bringing together demand and supply; • the support to increase the number of researchers active in this field research group; • the showcase of concrete projects clearly communicating the benefits achieved.
	The Economic Impact of Interoperability, Microsoft 2012	This study concludes that public sector interoperability has a positive impact on GDP. As the number of connected services increases, the value and efficiency of public administration grows significantly, thus reducing the wasted hours of citizens and businesses (i.e. the burden on GDP). The study applies a theoretical model to estimate potential GDP impacts of required activities for citizens and businesses, considering the number of activities and time to execute each activity. The model assumes that any time saved through improved interoperability will be spent on productive activity which will contribute to GDP.

FOCUS	TITLE / LINK	KEY POINTS
	The Economics of Public Sector Information, Pollock 2009	Concluded that on £70m sales of topographic and transport data products, a move from average to marginal cost pricing would increase economic welfare by £156m
	The Socio Economic Impact of the Spatial Data Infrastructure of Catalunya, JRC 2008	Efficiency benefits of €2.6m and costs recovered in 6 months
	The Socio Economic Impact of the Spatial Data Infrastructure of Lombardia, JRC 2011	11% cost savings and 17% time savings on environmental reporting
	The Use of Spatial Data for the Preparation of Environmental Reports, JRC 2010	
	The Value of Danish Address Data, 2010 Getting the job done - How to improve an INSPIRE Annex 1 theme and collect substantial socio-economic benefits The financial benefits of open basic data in Denmark	<p>Danish address data was made available free of charge in 2002. An assessment of the benefits in 2010 showed very positive ROI. A further project to improve the address data described at the INSPIRE Conference in 2013 also anticipates substantial benefit.</p> <p>Once the Danish Basic Data initiative has been completely phased in, by 2020, there are expected savings for the public sector of about DKK 250 mill. per year as a result of lower administration costs.</p>
	The Value of Geospatial Information to Local Public Service Delivery in England and Wales, 2010	<p>Main points:</p> <ul style="list-style-type: none"> • Real output of local government increased by over £230 million in 2009 as a result of the accumulated productivity benefits of using geospatial applications; • GDP for England and Wales was over £320 million higher in 2009 using GI; • Projecting forward to 2015, GDP for England and Wales will be an estimated £560 million higher using GI; • Better policies and action to deliver the ideal scenario, could improve

FOCUS	TITLE / LINK	KEY POINTS
		GDP by an estimated £600m by 2014-5.
	The Value of Spatial Information to the Australian and New Zealand Economies, ACIL Tasman 2008/09	The Australian study estimated that constraints on data access had reduced productivity in certain sectors by between 5% and 15%, resulting in consumption and GDP being around 7% lower in 2006/07 (around AUD0.5bn) that it might otherwise have been.
	UK Location Programme, Benefits Realisation Strategy, 2012	
	US Gridwise Architecture Council Electric Power Industry Study into the Financial Benefits of Interoperability, 2009	Puts the benefits of interoperability into an industry context. Makes reference to the 2005 NASA study above.
	What is the Economic Impact of Geo Services? - a report prepared by Olera for Google, 2013	<p>Global revenues from Geo services are between \$150bn and \$270bn p.a. Geo services contribute to significant cost savings, for example:</p> <ul style="list-style-type: none"> • 1.1bn hours of travel time and 3.5bn litres of fuel saved through improved navigation; • \$8bn to \$22bn saved through better targeted irrigation; • Geo services help in faster emergency response, for example in the UK Geo services may have helped in saving 152 lives p.a.
Earth observation	About GMES and Data: Geese and Golden Eggs, EARSC 2012	PSI economics point to no or marginal cost prices, enabling benefits to be maximised
e-Government	Australian National Office for the Information Economy e-Government Benefits Survey, 2003	Cost savings to public authorities were expected in 24 of the 38 surveyed projects, with total savings of AUD100m against an investment of AUD108m (a benefit cost ratio of 92.5% or 61.1% if all projects were taken into account). A user survey estimated citizen cost savings of AUD14.62 per transaction and business cost savings of AUD25 per transaction.
Environmental information	Socioeconomic Benefits Community – a community of practice	Activities include:

FOCUS	TITLE / LINK	KEY POINTS
	(CoP) for socioeconomic benefits and assessment of environmental information	<ul style="list-style-type: none"> • Developing a database of experiences and lessons learned, • Offering a glossary of terms and reference material and list of experts; • Assembling a compendium of case studies and analysis methodologies • New methods for qualitative and quantitative analyses
General GI studies	Economic Value of Geospatial Data, Geospatial World May 2013	A synopsis of the various benefits studies concerning geospatial data
GI economic studies	Putting the US Geospatial Services Industry on the Map, Boston Consulting Group 2012	In 2011 the US geospatial industry generated approximately \$73bn in revenues and employed at least 500k people. The industry contributed \$1.6tn in revenues and \$1.4tn in cost savings in the wider US economy.
ICT standardisation and interoperability	NASA's Geospatial Standards ROI Study, 2004/05 - A Case Study from the Network Centric Operations Industry Consortium	A Booz Allen Hamilton study carried out for NASA's Geospatial Interoperability Office in 2004/5 concluded that a project using open standards had a risk-adjusted ROI of 163% and saved 26.2% compared to the project that relied on proprietary standards. In addition maintenance and operation costs were lower, future projects using the same standards are cheaper to implement, and the open solution delivered 55% more value to its stakeholders.
Individual applications	e-Planning Programme - Scotland	The e-Planning website allows online submission of applications and appeals, enabling faster and more transparent decisions. It saved applicants more than €8 million in 2012, and was estimated to save €52,5 million over first 10 years of the project. The improved service has also increased efficiencies in the public sector, providing savings to businesses and offering citizens greater confidence in the process. It is expected that the website will save all planning authorities €10 million over the first 10 years.

FOCUS	TITLE / LINK	KEY POINTS
Open data	Creating Value through Open Data	
Open data	Review of Recent Studies on PSI Re-use and Related Developments, Vickery 2011	With easier access, improved infrastructure and lower barriers, the direct and indirect economic impacts from PSI applications and use across the whole EU27 economy in 2008 could have increased from €140bn to around €200bn. In the geospatial sector, economic benefits could increase by 10%-40% through improved access, use of data standards and building skills and knowledge. Productivity could be doubled with better policies and new markets could develop in finance, energy and construction.
Open data	The Open Data Economy Unlocking Economic Value by Opening Government and Public Data	This study examines the maturity of Open Data portals of selected countries, which have already initialised some Open Data initiatives.
Open source	Dutch Provinces Save Millions Sharing and Using GIS Tools	Twelve Dutch provinces estimate that since 2009 they have saved 4.5 million euro by working together and by using open source software solutions for their Geographic Information Systems. The twelve are now looking to build communities around their open source tools.
SDI / INSPIRE	Assessing Social Benefits in Sweden	Identifies and quantifies a range of social benefits for citizens and business, such as better service delivery, cost savings due to less red tape, improved transparency, and greater participation.

15. Training Resources

REFERENCE	DESCRIPTION
Compass INSPIRE Solutions	Compass offers various solutions to support INSPIRE implementation and compliance, largely using open source technologies.
GeoSmartCity INSPIRE Training	
GeoSolutions INSPIRE Support	GeoSolutions is specialised in processing and dissemination of geospatial data with their Open Source Software, GeoServer. They offer training on INSPIRE-related aspects of using GeoServer .
GGP INSPIRE Training and support	This service includes cost-effective solutions to prepare and publish INSPIRE-compliant data and metadata.
GISIG E-learning platform	This e-learning platform links to several training packages, including the SMespire and LINKVIT resources, and the training modules developed for the EULF Marine Pilot.
INSPIRE Forum Training Material	The INSPIRE Forum has a section on training, which includes sharing experiences, best practices, apps, videos, webinars and any other training resource on INSPIRE.
Leveraging INspire Knowledge into Vocational Innovative Training (LINKVIT)	LINKVIT aims to create dynamic platform enabling people to take part in learning experiences, as well as helping to develop the education and training sector across Europe, exchanging best practices, and increase their staff's expertise.
Smespire	This EU-funded project maintains several modules of training for non-technical experts, spatial data technical experts and network services technical experts.
Snowflake INSPIRE Training	Data exchange solutions, training and resources, including webinars, to help organisations implement INSPIRE.
Szkolenia Akademia INSPIRE (in Polish)	Hosted by UNEP-GRID, one of the few specialized centres in the world in charge of collecting, processing and facilitating access to environmental data and information as well as promoting spatial data and GIS (Geographic Information Systems) applications. It includes training resources on GIS, geo-information and INSPIRE, building on the experience and material of the older project Akademia INSPIRE (in Polish only).

16. Key Facts – Frequently Asked Questions

What is interoperability?

In the ISA context, the facilitation of cross-border and cross-sector information exchange, taking into account legal, organisational, semantic and technical aspects.

What is the ISA² programme?

The ISA² programme supports the development of digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services. Solutions developed by ISA² and under its predecessor ISA are generally available for free. ISA² will run from 1 January 2016 until 31 December 2020.

What is new in ISA² compared to ISA?

ISA² succeeds, and will consolidate, promote and expand the activities performed by the ISA Programme. More in detail, ISA² will:

- ensure that interoperability activities are well coordinated at EU level;
- develop and operate solutions for the public administrations on the basis of businesses' and citizens' needs;
- put in place the necessary instruments to boost interoperability at EU and national level, such as a revised European Interoperability Framework (EIF), a revised European Interoperability Strategy (EIS), an Architecture, the European Interoperability Reference Architecture (EIRA) and a Cartography of solutions, the European Interoperability Cartography (EIC).

What is the difference between the Digital Agenda and ISA²?

The Digital Agenda helps every European go digital. It outlines what needs to be done to help EU citizens to profit from the digital economy. ISA² contributes to the Digital Agenda by dealing specifically with interoperability, reuse and sharing between European public administrations.

What is e-Government?

Public administrations offering services online and exchanging information electronically with each other and businesses/citizens.

Is ISA² about e-Government?

Yes. ISA², by supporting and facilitating cross-border electronic collaboration between public administrations, covers e-Government activities between public administrations.

What is ISA² doing for the Digital Single market?

The ISA² unit ensures coordination with the Digital Single Market, notably on the Priority ICT Standards Plan and the EU Catalogue of ICT standards. More into detail, the ISA² builds on the contribution of the ISA programme and its overarching role in defining, promoting and supporting the implementation of interoperability solutions and frameworks for European public administrations, achieving synergies, promoting the re-use of solutions and translating their interoperability requirements into specifications and

standards for digital services. Moreover, ISA² includes actions on accessibility for all, to be incorporated into the development of strategies relating to the interoperability of public services across the Union, taking into consideration the most disadvantaged citizens and the most sparsely populated areas in order to combat the digital divide and exclusion. Finally, the ISA² programme is an instrument for the modernisation of European public administrations and the improvement of their interoperability, which is an important contribution to the completion of the digital single market.

What is the difference between ISA² and the e-Government action plan?

ISA2 is a support programme that funds actions which are implemented by the European Commission. The e-Government action plan points out areas in which common actions are needed by Member States, sets goals and gives time frames to reach these goals. Member States implement the necessary actions within their own countries. The Commission monitors this process and provides expertise and benchmark data so Member States can assess progress in comparison with their own performance and that of other Member States.

List of abbreviations and definitions

ABBREVIATION	MEANING
AIXM	Aeronautical Information Exchange Model
ARE3NA	Reusable INSPIRE Reference Platform. A related action in the Interoperability Solutions for Public Administrations (ISA) Programme to share re-usable components for publishing and using data and services under INSPIRE.
CAP	Common Agricultural Policy
CIPA	Common Infrastructure for Public Administrations. The combination of infrastructural building blocks to enable activities between public administrations across borders and in different sectors.
CIRCABC	Communications and Information Resource Centre for Administrations, Businesses and Citizens
CISE	Common Information Sharing Environment for the Surveillance of the EU Maritime Domain
EC	European Commission
e-Delivery	Electronic Delivery Secure messaging service of CIPA: cross-border services that provide public administrations with secure and interoperable means of exchanging information with other administrations.
EGNOS	European Geostationary Navigation Overlay System, part of the Galileo GNSS
EIA	European Interoperability Architecture
EIF	European Interoperability Framework
EIS	European Interoperability Strategy
ELF	European Location Framework. An FP7 funded initiative led by Norway and Finland to harmonise mapping for cross-border applications.
ELISE	European Location Interoperability Solutions for e-Government
EPBD	Directive, 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the Energy Performance of Buildings (EPBD)
ETRS89	European Terrestrial Reference System 1989
EU	European Union
EULF	European Union Location Framework

ABBREVIATION	MEANING
EUNIS	European Nature Information System
EUREF	Reference Frame Sub-Commission for Europe
FP7	7th Framework Programme. Current EU programme for research.
GBIF	Global Biodiversity Information Facility
GMES	Global Monitoring for Environment and Security, now replaced by the Copernicus Programme
GMO	Genetically Modified Organism
GNSS	Global Navigation Satellite System
ICT	Information and Communication Technology
INSPIRE	Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community
ISA	Interoperability Solutions for Public Administrations
ISA ²	Interoperability Solutions and Common Frameworks for European Public Administrations, Businesses and Citizens
ITRS	International Terrestrial Reference System
JRC	European Commission Joint Research Centre
LSP	Large Scale Pilot. ISA programme pilot aiming to demonstrate a “federated” solution and borderless operation of national systems in at least 6 Member States but with the potential to scale up to all Member States
MS	Member State
MSFD	Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation and Development
OGD	Open Government Data
PEPPOL	Pan-European Public Procurement Online. PEPPOL is an LSP enabling cross-border eProcurement, connecting communities through standards-based solutions.
PSI Directive	Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of Public Sector Information

ABBREVIATION	MEANING
	(PSI)
RING	Register of Infrastructures
ROI	Return on Investment
SDI	Spatial Data Infrastructure
SEIS	Shared Environmental Information System
SEMIC	Semantic Interoperability Centre (www.semic.com)
SES	Single European Sky
SESAR	Single European Sky ATM Research
SME	Small or Medium Enterprise
SOA	Service Oriented Architecture
STORK	Secure Identity Across Borders Linked. STORK is an LSP which aims to establish a European eID Interoperability Platform.
UKLP	United Kingdom Location Programme
XML	eXtensible Markup Language

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Stimulating innovation
Supporting legislation

